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## **Inside**

### **Editorial :**

- Medical Philanthropy

### **Original Article :**

- Management Protocol for Patients with Oral Cancers at A Tertiary Centre
- Initial Experience of Prostatic Urethral Lift (UroLift®) Procedure : A Minimally Invasive Treatment for Symptomatic Benign Prostatic Hyperplasia
- Benefits of Pelvic Floor Muscle Training (PFMT) and Biofeedback Therapy in Patients with Post Prostatectomy Urinary Incontinence

### **Case Report :**

- A Breakthrough in Cardiac Care : A Young Man's Journey to Recovery Through Endoscopic Surgery
- Hirayama Disease with Neuroimaging Feature in Specialized Flexion MRI ---- A Case Report

### **Review Article :**

- Unconventional Modes of Ventilation : An Introductory Overview

### **Camp Report :**

- ENT And Maxillofacial Camp at Giridih

### **Abstracts :**

- Abstracts from The 36th Annual Scientific Conference of The Ramakrishna Mission Seva Pratishtan Vivekananda Institute of Medical Sciences, November, 2024

# *Journal of the Vivekananda Institute of Medical Sciences*

## **RAMAKRISHNA MISSION SEVA PRATISHTHAN**

99, Sarat Bose Road, Kolkata - 700 026  
Phone: +91 33 2475-3636/37/38/39, 2476 0631/80  
E-mail: rkmspsmvims@gmail.com / rkmspsm@gmail.com  
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# Journal of the Vivekananda Institute of Medical Sciences

Page No.

**Editorial :**

**Medical Philanthropy**

— Ranjan Raychowdhury

5

**Original Article :**

**a) Management Protocol for Patients with Oral Cancers at A Tertiary Centre**

— Sayantan Nag, Suman Das

Dipshankar Jana, Ranjan Raychowdhury

7

**b) Initial Experience of Prostatic Urethral Lift (UroLift®) Procedure :**

**A Minimally Invasive Treatment for Symptomatic Benign Prostatic Hyperplasia**

— Sachin K. Karnwal, Kalyan Kumar Sarkar,

Prithwiraj Ghoshal, Kaushik Sarkar

14

**c) Benefits of Pelvic Floor Muscle Training (PFMT) and Biofeedback Therapy in Patients with Post Prostatectomy Urinary Incontinence**

— Argha Mondal, Kalyan Kumar Sarkar,

Prithwiraj Ghoshal, Kaushik Sarkar

18

**Case Report :**

**a) A Breakthrough in Cardiac Care : A Young Man's Journey to Recovery Through Endoscopic Surgery**

— Sandip Sardar, Monalisa Datta

21

**b) Hirayama Disease with Neuroimaging Feature in Specialized Flexion MRI — A Case Report**

— Shrabanti Roychowdhury

24

**Review Article :**

**Unconventional Modes of Ventilation : An Introductory Overview**

— Guruprasad Hassan Shankar

27

**Camp Report :**

**ENT And Maxillofacial Camp at Giridih**

— S. Sudrania, N. Sarkar, K. Chaudhuri

35

**Abstracts :**

**Abstracts from The 36th Annual Scientific Conference of The Ramakrishna Mission Seva Pratishthan Vivekananda Institute of Medical Sciences, November, 2024**

40

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Peer review is the heart of scientific publication. The Editor wishes to place on record the contributions of the following VIMS Faculty who have provided their time for peer review of the submissions :

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Dr. Suman Das (Visiting Surgeon, Maxillofacial Unit).

Dr. Saikat Sengupta (Senior Consultant, Dept. of Anaesthesiology, Perioperative Medicine & Pain, Apollo Multispecialty Hospitals, Kolkata)

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Phone : (033) 2475-3636 (4 lines).

E-mail : [rkmspsm@gmail.com](mailto:rkmspsm@gmail.com) & [rkmspsmvims@gmail.com](mailto:rkmspsmvims@gmail.com).

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## **Editorial**

### **Medical Philanthropy**

The Albert Einstein College of Medicine (AECOM), in New York City, was founded in 1953 as a private medical school affiliated to the Yeshiva University. It was founded to provide medical education to students “of all creeds and races”, which is why Albert Einstein agreed to the use of his name. Medical education in the USA is expensive, and on average each medical student graduates with a debt of over \$200,000 (according to the Association of American Medical Colleges, AAMC).

It is little wonder, therefore, that headlines were made when Ruth Gottesman, Emeritus Professor of Paediatrics, and Chairman of the Board of Trustees of AECOM, announced a donation of \$1 billion to the College, which has made tuition free to all the students, forever. She inherited her husband’s stock portfolio estimated at \$3 billion, and, at the age of 94, with three settled children, decided to make the largest donation to any US medical school in history in February this year.

Not surprisingly, admission to AECOM has become much sought after, and only 3.8% of applicants were accepted for admission to the current academic year.

Professor Gottesman is no stranger to philanthropy; in 2008 along with her husband she donated \$25 million to AECOM to found a stem cell research institute and a clinical skills centre. Endowments of this sort are not uncommon in the USA; universities such as Stanford and Harvard are recipients of millions of dollars, which usually fund new institutes,

facilities and scholarships. However no donation has ever had a direct effect on student welfare akin to this before.

The recently published EdelGive-Hurun India Philanthropy list for 2024 named 200 of India’s most generous donors, of whom the top 10 gave Rs 4,625 crores, which makes up 53% of the total donations. The most generous Indian was Shiv Nader, the founder of HCL Technologies, who gave away Rs 2,153 crores, about 5 times the amount donated by Mukesh Ambani who was second on the list with Rs 407 crores. The main focus of these donations is education, but not specifically medical education.

There are 783 medical colleges in India recognised by the National Medical Commission, of which 452 are government colleges and 331 private colleges. Given that the average annual tuition fee for the MBBS course in a private college is between Rs 3 and 25 lakhs, about 42% of medical graduates in the country have a significant financial burden when they qualify. Unlike in the US, where medicine is high paying profession and most doctors have paid off their student debt within 10 years of qualifying, not all doctors in India are in salaried jobs, and beginners in private practice may take years to achieve an income which will allow them to afford their own home and a reasonable standard of living. One might argue that those students who attend private colleges can afford it (or rather, their parents can afford it) but first, that is not always the case and secondly, surely education should be available to all, not just those who can pay?

What impact would a donation similar to Professor Gottesman's (Rs. 8400 crores) have in India? If it were made to a government medical college of good repute, where the tuition is already significantly subsidised by the state, would it result in an upgrade in facilities, or a research fund for the faculty? Would it help transform the recipient into a Centre of Excellence? If it made tuition completely free would it attract higher ranking NEET candidates? We will probably never find out; unlike the IIT's and IIM's, several of which have received large donations from grateful alumni, no similar endowments have been forthcoming to the medical colleges. This may simply reflect on the income disparity – although doctors in India are thought to be well off few of them earn anywhere near what their IIT/IIM peers receive in remuneration. However, government policy is also not helpful. The IIT's and IIM's are autonomous, and alumni who wish to make endowments can do so relatively easily. Apart from a handful of central institutes most

government medical colleges are run by State Health Universities, and trying to directly donate to them is near impossible.

In this respect our hospital is different. The Ramakrishna Mission Seva Pratishthan as an organisation was set up with the help of the donations of people from all walks of life, as was The Ramakrishna Mission Shishu Mangal Pratishthan, our predecessor. Various departments of both the State and Central governments have also provided grants for upgrading the hospital infrastructure, and boards and plaques dot the hospital wards and corridors gratefully recording the generosity of those who donated money. Asan Institute with a reputation for providing excellent medical care at very reasonable rates, donors are assured that their money is directly benefitting the needy. The two Christian Medical Colleges (Ludhiana and Vellore) are similar, but the leader in this field is undoubtedly the Sri Sathya Sai Hospital in Bangalore, which provides completely free treatment to all.

Original Article

## Management Protocol for Patients with Oral Cancers at A Tertiary Centre

Sayantana Nag<sup>1</sup>, Suman Das<sup>2</sup>, Dipshankar Jana<sup>3</sup>, Ranjan Raychowdhury<sup>4</sup>

### Abstract :

Management of oral cancers involves a multidisciplinary team approach. Surgery is ideally the primary treatment option for non-metastatic disease, and less invasive curative surgical approaches are preferred in early stage disease to minimize surgical morbidity. For patients at high risk of recurrence, adjuvant treatment using radiation therapy or chemoradiation is often used. Systemic therapy may also be used in the neoadjuvant setting (for advanced-stage disease with the intent of mandibular preservation) or in the palliative setting (for non-salvageable locoregional recurrence and/or distant metastases). Patient involvement in treatment decision is the key for patient-driven management, particularly in clinical situation with poor prognosis, for example, early postoperative recurrence before planned adjuvant therapy.

### Introduction :

Oral cavity cancer (OCC) accounts globally for an estimated 3,77,000 new cases yearly (2% of all cancers) and over 177,000 deaths (1.8% of all cancers).<sup>[1]</sup> Almost 90% of these cancers are squamous cell carcinomas.<sup>[2]</sup> There are noticeable geographic disparities in the incidence of oral cavity squamous cell carcinoma (OSCC) with approximately two thirds of the cases occurring in the developing countries.<sup>[2]</sup> Tobacco use in all its forms, betel quid, and alcohol consumption are well-established risk factors of OSCC.<sup>[2,3]</sup> In

recent years, there has been an increase in the prevalence of the disease among nonsmokers, suggesting that other factors may be implicated; however, further studies are required to identify these risk factors.<sup>[4]</sup> The majority of the patients with OSCC are presented with advanced disease, with relatively poor overall survival (OS).<sup>[5]</sup> Much of the modern knowledge about oral cancer treatment comes from the 19th and 20th centuries; it can be traced back to 1841 when Theodor Kocher and his colleagues operated on 120 patients with oral cancer<sup>[6]</sup>. Around 1905–1906, cervical dissection was proposed as an extended resection for oral cancer. In 1963, conservative cervical dissection was developed to preserve the accessory nerves and other parts of the body<sup>[6,7]</sup>. In addition, the development of reconstructive surgery has also contributed greatly to the improvement of patients' quality of life (QoL), and surgery under computer simulation is becoming more common<sup>[8]</sup>. Currently, surgery is still the first choice for oral cancer treatment in both the elderly and the young<sup>[9]</sup>. Still, intensity-modulated radiation therapy, molecular targeted drugs, and immune checkpoint inhibitors are now used as adjuvant therapy for advanced cancer<sup>[10,11,2]</sup>. However, it is not only the treatment but also postoperative rehabilitation and multidisciplinary treatment that have been developed in recent years. In fact, it is not a single disability after oral cancer treatment, but rather multiple disabilities (dysphagia, dysarthria, aesthetic disorders, and psychosocial disorders)

<sup>1</sup>Medical Officer, <sup>2</sup>Visiting Surgeon, <sup>3</sup>House Staff — Department of Maxillofacial Surgery; <sup>4</sup>Professor, Department of ENT & Head Neck Surgery, RKMSP VIMS

that can significantly impair QoL, thus requiring multidisciplinary intervention<sup>[3]</sup>. The fact that the suicide rate among oral cancer patients, or those who have undergone oral cancer treatment, is the highest among all cancers is another indication of the intensity and difficulty of oral cancer treatment<sup>[14,15]</sup>. Multidisciplinary team approaches and supportive care have been reported to shorten the time to treatment and improve outcomes.

### Diagnostic workflow for evaluation of clinical stages (Fig. 1) :

The routine examination of a patient with oral cavity cancer (OCC) includes history, physical examination, routine blood investigations, orthopantomogram (OPG), chest X-ray, and examination under anesthesia with endoscopy, if indicated. Contrast enhanced computed tomography (CECT) and/or magnetic resonance imaging (with contrast) of the primary and neck, and fluorodeoxyglucose-positron emission tomography (FDG-PET)/CT (in selected cases with advanced stage disease) for patients with III-IV stage disease are performed.

### Multi disciplinary tumor board (MTB) :

Specialists in treatment modalities, such as maxillofacial surgeons, otorhinolaryngologists and head neck surgeons, radiation and medical oncologists, primarily comprise MTBs. Advice from diagnostic radiologists and pathologists help us with the initial staging, histopathological diagnosis, and histological examination of the surgical specimens. Furthermore, medical students' (senior residents, junior residents and medical officers) participation are encouraged because participating in the MTB is an oncology practice useful for their education.

### Staging :

	N0	N1	N2	N3
T1	Stage I			
T2	Stage II			
T3	Stage III			
T4a	Stage IVA			Stage IVB
T4b				

Early Oral Cancers    
 Locally advanced Oral cancers

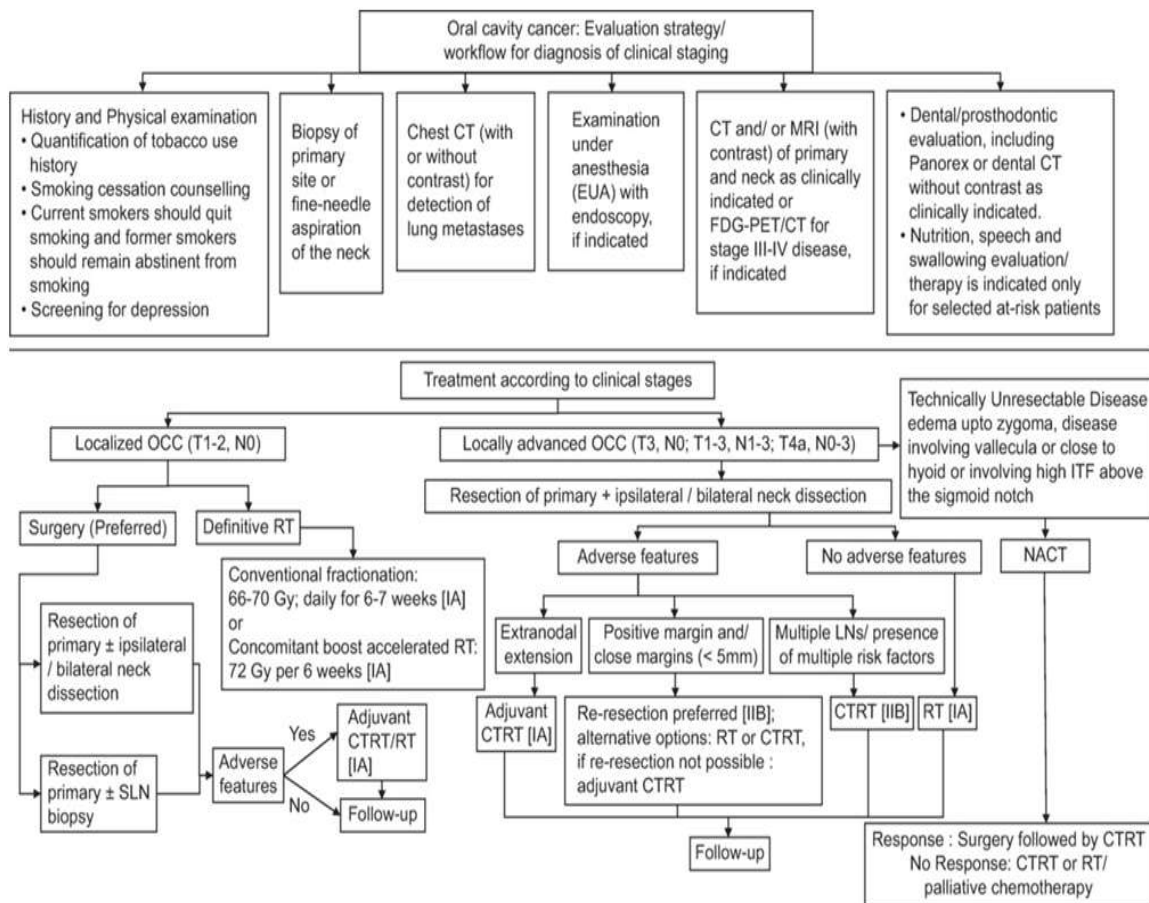
**T3:** Tumour > 4 cm and DOI ≤10 mm or Tumour ≤4cm and DOI> 10 mm  
**T4a:** Moderately advanced local disease - tumour involving cortical bone of mandible or maxilla, inferior alveolar nerve, floor of mouth, skin of face, maxillary sinus  
**T4b:** Very advanced local disease - tumour invades masticator space, pterygoid plates, skull base and/or encases the internal carotid artery.  
**N1:** Metastasis in a single ipsilateral lymph node, 3 cm or less in greatest dimension and ENE-negative.  
**N2:** Metastasis in a single ipsilateral lymph node larger than 3 cm but not larger than 6 cm in greatest dimension and ENE-negative; or metastases in multiple ipsilateral lymph nodes, none larger than 6 cm in greatest dimension and ENE-negative; or metastasis in bilateral or contralateral lymph nodes, none larger than 6 cm in greatest dimension and ENE-negative.  
**N3:** Metastasis in a lymph node larger than 6 cm in greatest dimension and ENE-negative; or metastasis in any lymph node(s) and clinically overt ENE-positive

### Treatment according to clinical stages (Fig.1):

#### 1) Localized oral cavity cancer (T1-2, N0) :

#### Surgery

Early-stage disease is generally treated using a single modality. Surgery is the preferred choice of treatment for oral cancers. Elective neck dissection in early oral cancers with clinical node-negative oral squamous cell cancer has shown to be more beneficial than therapeutic neck dissection, as it results in decreased relapse rates and better survival<sup>[3-6]</sup>. In patients with T1N0 or T2N0 OCC, resection of the primary tumor site ± ipsilateral/bilateral neck dissection and resection of the primary tumor site ± sentinel lymph node biopsy (SLNB) are the two options for surgical therapy<sup>[4,5]</sup>. To assess the presence of occult metastatic disease, SLNB in early OCC is recommended<sup>[7]</sup>. Post-surgery, in case of adverse features, adjuvant CTRT/RT (EL I; Grade A) is recommended.



**Fig. 1** showing Flowchart for the management of oral cavity cancer. CT = Computed tomography, RT = Radiation, CTRT = Chemoradiotherapy, OCC = Oral cavity cancer, SLN = Sentinel lymph node, NACT = Neoadjuvant chemotherapy, ITF = Infratemporal fossa, T = Tumor, N = Node, M = Metastasis, LNs = Lymph nodes, MRI = Magnetic resonance imaging

**Source :**

Indian clinical practice consensus guidelines for the management of oral cavity cancer: Update 2022

Cancer Research, Statistics, and Treatment 7(Suppl 1):S6-S11, January 2024.

**2) Definitive RT (Radiation) :**

Surgery is the preferred therapeutic modality as it is a single-day procedure; RT is an option for the treatment of a second primary after surgery. Selected patients, who are medically inoperable or refuse surgery, should be given definitive RT

as an alternative to surgery. Brachytherapy is one of the most conformal techniques available to treat oral cavity tumors though in such cases. It gives excellent results in terms of toxicities, organ preservation and cosmesis.

### **3) Locally advanced oral cavity cancer (T3, N0; T1–3, N1–3; T4a, N0–3)**

#### **Surgery :**

Studies have shown that patients who undergo surgery + concurrent RT and chemotherapy have better outcomes<sup>[8-10]</sup>. Patients with resectable lesions should be treated with a combined modality (surgery followed by RT/CTRT [Chemoradiotherapy]).

#### **4) Adjuvant treatment :**

The choice of adjuvant treatment should be based on the presence of adverse features post-surgery/neck dissection<sup>[11]</sup>.

#### **Recommendations :**

1. Patients with extranodal extension should be treated with CTRT.
2. For patients with positive margins, re-resection followed by RT is recommended. If this is not feasible, then CTRT may be considered.
3. For patients with other risk factors (pT3/pT4, N2/N3, enlarged nodes at levels IV or V, perineural invasion, lymphatic invasion, vascular embolism), RT or CTRT is recommended.
4. For patients with higher nodal disease burden (two or more lymph nodes positive), CTRT is preferred.

#### **Technically unresectable disease :**

For technically unresectable disease like edema or soft tissue up to the zygoma, involvement of vallecula, disease close to the hyoid or involving high infratemporal fossa above the sigmoid notch—neoadjuvant chemotherapy is the treatment of choice<sup>[15]</sup>. Responders may undergo surgery followed by CTRT; for patients whose disease does not respond, CTRT or RT or palliative treatment can be offered.

#### **Definitive RT/CTRT :**

CTRT has been added as an alternative option to definitive RT in people with unresectable oral cancer (to be considered as an option when surgery is not feasible).

#### **Organ preservation in operable oral cancers:**

There have been isolated reports of chemoradiotherapy (CRT) as definitive treatment replacing surgery when perceived morbidity is major such as total loss of tongue. Although control rates seemed reasonable in these studies the results must be viewed with caution given the fact that these patients are highly select group treated at one institution with a high rate of complications, ORN (Osteoradionecrosis) occurring in as high as 21%.

Another approach that has been tried is, neoadjuvant chemotherapy (NACT) with an attempt to downsize tumours converting radical surgical procedures into more conservative resections. Its potential benefit has been explored in a randomised setting.<sup>[18,19]</sup> Licitra et al, included 195 patients of stages T2-T4 N0-N2M0 randomised to 3 cycles of NACT followed by surgery versus upfront surgery. Although the trial did not provide the survival benefit with NACT it was interestingly noted that those in the chemotherapy arm had a lesser incidence of mandibulectomy (31% versus 52%) as well as lesser need for adjuvant radiation (33% versus 46%)<sup>[18]</sup>. Zhong et al, using NACT in a similar design to the Licitra trial, included 256 patients of stage III-IVA locally advanced resectable oral cancer. This trial was designed primarily with an aim to demonstrate survival benefit OS (Overall survival) or DFS (Disease free survival), which it failed to do. Unlike the Licitra trial,

there were no details on whether patients in the NACT arm were amenable to more conservative procedures.<sup>[19]</sup> Although conceptually attractive, this approach while providing proof of concept, stays largely investigational. A properly designed study would help establish the role of NACT aimed at organ preservation in oral cancer.

#### **Management Protocol In Our Hospital :**

Patients with oral cancer usually present to either the Maxillofacial or the Otolaryngology outpatients. After history and examination the patient is simultaneously prepared for biopsy and imaging modalities as per requirement. The case is discussed at the multi-disciplinary Joint Head & Neck Clinic<sup>[20]</sup> to confirm cTNM staging

and management plan. If surgery is the recommended treatment then after its completion the case is again discussed at the Joint Clinic with the histopathology report for further management as per pTNM staging. As our Institute has a functional Medical Oncology department but lacks External Beam Radiotherapy equipment, Radiotherapy is organised under Swasthya Sathi at other hospitals by our Oncologist.

All the patients undergo regular follow up; once every 4 to 6 weeks for the first year, then every 3 months for the second and third year, every 4 months for the fourth year, every 6 months for the fifth year, and thereafter annually.



**Growth in right lateral border of tongue**



**Bilateral Neck dissection**

#### **Discussion :**

A significant proportion of oral cancer patients present late despite ease of accessibility for examination and these cancers having a step wise tumour progression model. Thorough clinical examination supplemented with

appropriate imaging, which usually is CECT, is mandatory for accurate assessment of disease extension. Surgery followed by appropriate adjuvant therapy (RT/CTRT) should be offered to operable cases for optimal outcomes. Achieving adequate mucosal, soft tissue and

bone margins in all the 3 dimensions is a must to ensure surgical adequacy. Certain borderline resectable tumours can be brought into the realm of surgical excision by administration of NACT. Isolated studies have shown the benefit of CTRT in terms of organ preservation (tongue and mandible), however readers should be aware that these are highly select patients treated at few centres and hence may have limited applicability.

### Conclusion :

Oral cancer patients are regularly treated in our

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### Conflict of Interest :

None of the authors have any conflict of interest to declare.

### Acknowledgement :

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**Original Article****Initial Experience of Prostatic Urethral Lift (UroLift®) Procedure : A Minimally Invasive Treatment for Symptomatic Benign Prostatic Hyperplasia**Sachin K. Karnwal<sup>1</sup>, Kalyan Kumar Sarkar<sup>2</sup>, Prithwiraj Ghoshal<sup>3</sup>, Kaushik Sarkar<sup>4</sup>**Abstract :**

UroLift®, an emerging treatment for BPH, is growing in popularity due to its minimal invasive nature and reduced side effects. UroLift is a mechanical intervention that opens up the anterior prostatic urethra through retraction of the lateral lobes of the prostate using nitinol and stainless steel implants. Many men with benign prostatic hyperplasia (BPH) discontinue medical treatment because they are unhappy with their current treatment. Although surgery and ablation using different types of energy are still the standard treatment for BPH, many men seek less invasive procedures that can improve symptoms without the complications associated with tissue eliminating procedures. Prostatic urethral lifts open the prostatic urethra via a permanent implant delivered under cystoscopic visualization. The implant actually "retains" the lateral prostate lobe, creating a passage through the blocked prostate urethra. Urinary function and symptoms improve after the procedure without the major complications of prostatectomy.

**Key Words :**

Prostatic urethral lift, UroLift®, benign prostatic hyperplasia, prostate, LUTS.

**Introduction :**

UroLift® is becoming a popular treatment for BPH because it is less invasive and has fewer side effects. Over 30% of men over 50 have BPH, and medications don't always work well or cause side effects. When medications fail,

surgery may be needed<sup>[1]</sup>. Oral medications are attractive, but symptom relief is modest as witnessed by International Prostate Symptom Score (IPSS) improvement. The incidence of side effects along with inadequate relief from the drugs prompt over 25% of men to discontinue treatment prematurely<sup>[2]</sup>. Beyond medical therapy Transurethral resection of the prostate (TURP) is considered to be the "gold standard" for BPH offering the best IPSS improvement<sup>[3]</sup>. This improvement, however, comes with a 20% perioperative morbidity rate and potential long term complications including incontinence (3%), strictures (7%), erectile (10%) and ejaculatory (65%) dysfunction<sup>[4,5]</sup>. Newer laser treatments aim to reduce these risks, but still have adverse effects. The Prostatic Urethral Lift procedure is well described in the literature<sup>[6]</sup>. The UroLift (NeoTract Inc., Pleasanton CA, USA) procedure (Figure1) separates the prostate lobes using permanent implants placed under local anaesthesia as an outpatient procedure. It is faster and more reliable than other therapies, with minimal bleeding and few complications like retrograde ejaculation or incontinence. This technique is preferred for its effectiveness and ease of use, offering a safer alternative for men with BPH who don't need drastic measures right away<sup>[4]</sup>.

**Case Presentation:**

A 72 years old male was referred to the urology department with acute urinary retention for which

<sup>1</sup>1<sup>st</sup> Year Post-doctorate Trainee, <sup>2</sup>Consultant, <sup>3,4</sup>Assist. Professor — Department of Urology RKMS VIMS

Corresponding Author : **Sachin K. Karnwal**, Department of Urology, RKMS VIMS, Email : skarnwal106@gmail.com, Mobile: 77058556654

he needed urgent catheterization. He was at this stage recovering from an acute myocardial event and percutaneous coronary intervention had been performed.

He had history of increased frequency of micturition, poor stream, and urgency for one year before this admission. He was on daily Aspirin 75mg and Ticagrelor 90mg. He had moderate BPH on DRE (Digital Rectal Exam) and his prostate volume was about 30 grams on ultrasound (Fig. 2 A) with normal upper tracts. He failed a trial of catheter removal. Cardiologists did not recommend surgical intervention at this stage as anti-platelet medications could not be stopped. After 6 months on indwelling catheter he was referred again for possible surgical intervention with permission to hold Ticagrelor but that single anti-platelet aspirin should continue.

Urodynamic study showed decreased flow rate with adequate detrusor muscle contractions. A preoperative flexible cystoscopy (Fig. 2 b) was done which demonstrated enlarged prostate, with occlusive left lateral lobe.

The UroLift® procedure was recommended as a minimally invasive procedure which could be performed in a patient continuing with aspirin<sup>[7]</sup>.

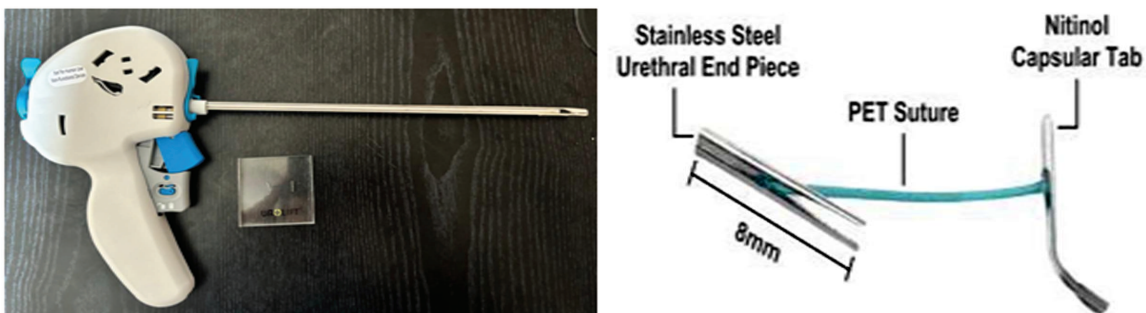
The patient had a preoperative urine culture, which was negative.

#### Procedure :

The main aim of the operative technique is to create a smooth channel in the front part of the prostate region, connecting the bladder neck to verumontanum.

The UroLift® procedure was performed in the operating room, under spinal anaesthesia. Using a small needle that emerges from the device (Fig. 3a, 3b), four small, permanent implants were placed to hold the prostate lobes apart and widening the urethral opening. 1<sup>st</sup> implant was placed (Fig. 4a) on the left at 2 o'clock position 1.5cm distal to the bladder neck, and 2<sup>nd</sup> implant was placed on the right (9 o'clock position 1.5 cm distal to the bladder neck). Two implants were placed further in front of the verumontanum on right and left side. Final cystoscopy demonstrated a patent anterior urethral channel and no significant bleeding at the implant sites (Fig. 4 b).

The entire procedure took 15 minutes, without any incision, thermal energy or removal of prostate tissue. The patient was put on Foley's catheter for next 5 days and on removal of catheter after 5 days patient was able to fully void and empty his bladder.



**Fig. 1. UroLift® system (TELEFLEX) a) Delivery system is composed of a handheld delivery device that fits into a Storz 20 F sheath and houses a Storz 2.9 mm 0 degree lens. A Storz custom bridge allows for 2.9 mm lens to be used for cystoscopy as well. b) The delivery device houses an implant consisting of a nitinol capsular tab (left), stainless steel urethral end piece (right) and a polyester monofilament.**

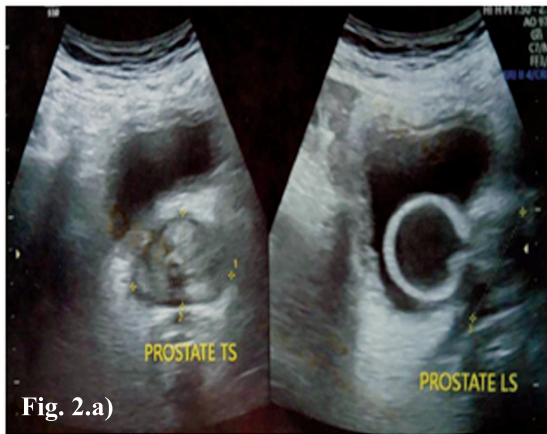


Fig. 2.a)

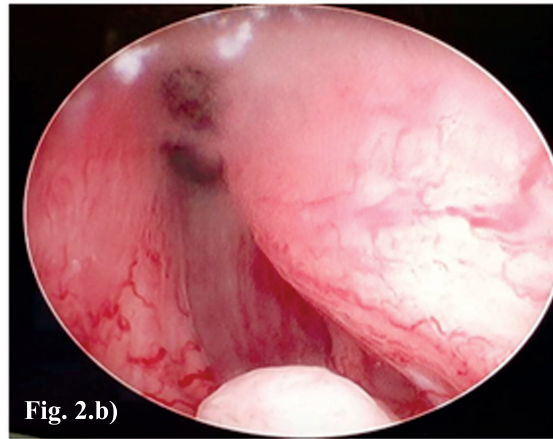


Fig. 2.b)

**Fig. 2.a) Pre-operative USG enlargement of prostate (PROSTATE TS,LS ).**

**Fig. 2.b) Pre-operative Flexible cystoscopic view showing enlargement of prostate Lt lobe>Rt lobe with small enlargement of median lobe**

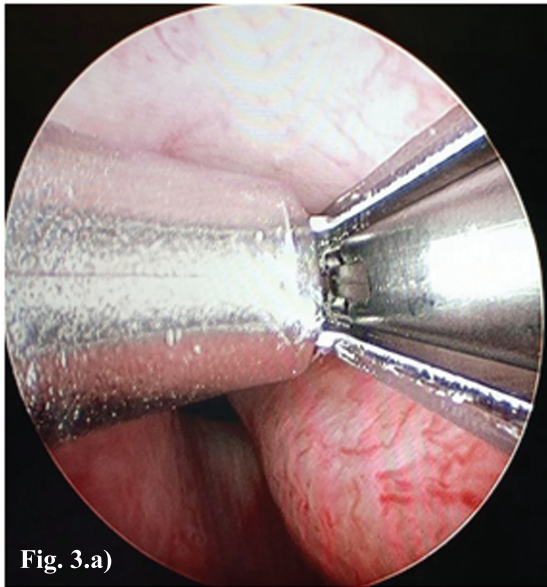


Fig. 3.a)

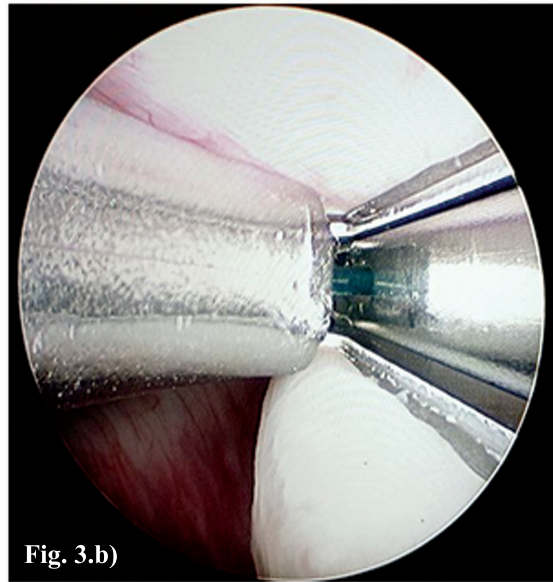


Fig. 3.b)

**Fig. 3. a). Placement of the UroLift® implant is in the anterior third of the prostatic fossa, before treatment the lateral lobes are firmly opposed compressing the lateral lobe tissue approximately 10 degree.**

**Fig. 3 b). Deployment of the UroLift® implant. After treatment the lateral lobes will be separated.**

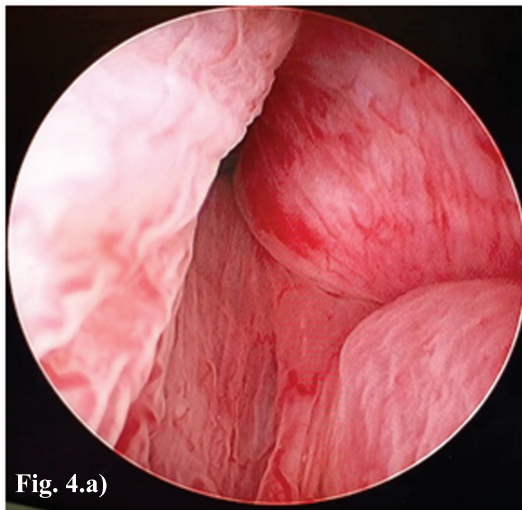


Fig. 4.a)

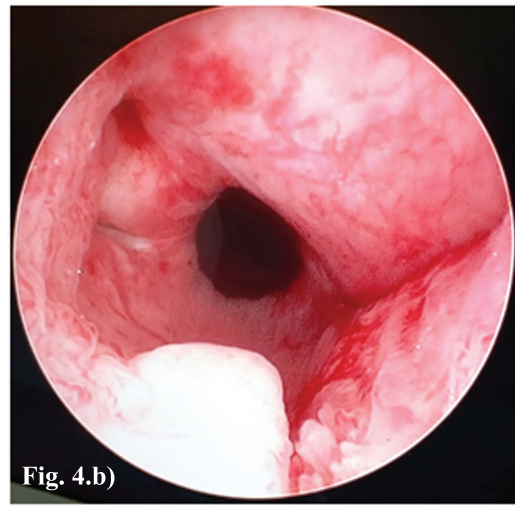


Fig. 4.b)

**Fig. 4. a) Deployment of the 1<sup>st</sup> UroLift® implant on Right Lobe.**

**Fig. 4.b) Four UroLift® implants hold back the prostatic lobes, creating a continuous anterior channel from bladder neck to veru montanum.**

#### **Discussion :**

The American Urological Association BPH guidelines<sup>[3]</sup> recognize that TURP remains the benchmark for interventional BPH therapy. TURP is highly effective in improving symptoms and urodynamic outcomes and is associated with only a 15% retreatment rate over 8 years<sup>[4]</sup>. While clearly effective in treating BPH, TURP is associated with a 20% morbidity rate including perioperative and intermittent postoperative bleeding, necessity for blood transfusions, TUR syndrome, necessity for prolonged catheterization and hospitalization, urinary incontinence, urethral strictures, erectile dysfunction and a very high retrograde ejaculation rate.<sup>[4,5]</sup> It can be done under local anaesthesia as an outpatient and has been shown to result in a 40% mean improvement in both IPSS and urinary flow at 2 years. A

remarkable advantage when compared to other interventional therapies is that patients report immediate improvement in symptomatology. Patients also report preservation of ejaculatory function.

#### **Conclusion :**

The UroLift® implant is placed using local or general or regional anaesthesia. It has been proven to provide rapid relief of symptoms while preserving prostate and sexual function. Performing the procedure correctly can reduce expected postoperative effects, such as some discomfort and haematuria, and make this minor treatment more effective. Results are durable with retreatment rates comparable to TURP.

**Conflict of interest :** None declared

**Original Article****Benefits of Pelvic Floor Muscle Training (PFMT) and Biofeedback Therapy in Patients with Post Prostatectomy Urinary Incontinence**Argha Mondal<sup>1</sup>, Kalyan Kumar Sarkar<sup>2</sup>, Prithwiraj Ghoshal<sup>3</sup>, Kaushik Sarkar<sup>4</sup>**Abstract :**

Urinary incontinence is occasionally seen in men after prostatectomy. This may be due to sphincter weakness or due to detrusor overactivity or neurogenic causes. Pelvic Floor Muscle Therapy (PFMT) with biofeedback is non-invasive initial management for this condition. Here we present a 71-year-old patient with lower urinary tract symptoms (LUTS) of frequency, urgency, urge incontinence and nocturia. This may be due to sphincter weakness or due to detrusor overactivity or neurogenic causes. This patient had a possible neurological cause of bladder dysfunction (cervical spondylotic myelopathy) along with urethral stricture and bladder neck obstruction. Severe stress and urge incontinence had developed post operatively. The intervention using pelvic floor muscles training, electrical stimulation and biofeedback therapy was successful. Biofeedback generates consciousness about muscle activity, and helps maximizing the muscle contractions in the pelvic floor region while avoiding other muscle groups' contractions.

**Keywords :**

Incontinence, Biofeedback, Bladder dysfunction, Pelvic floor muscle therapy.

**Introduction :**

A case of post prostatectomy urinary incontinence is presented wherein a 71 year old patient developed severe stress and urge incontinence

after internal urethrotomy for a urethral stricture, incision for a sclerotic bladder neck and revision transurethral prostatectomy. He had presented with irritative and obstructive urinary symptoms which were refractory to drugs and simple conservative measures. A satisfactory outcome was obtained with physiotherapy including pelvic floor muscle training, electrical stimulation and biofeedback therapy.

**Case Summary :**

A 71-year-old patient was admitted with lower urinary tract symptoms(LUTS) of frequency, urgency, urge incontinence and nocturia. He was diabetic on oral hypoglycaemic agents. He had mild spondylotic cervical myelopathy (D5, D6)with poor balance and gait unsteadiness on physiotherapy and expectant treatment. He had a past history of TURP in 2008.

On digital rectal examination prostate showed evidence of enlargement/regrowth. Anal tone and perianal sensations were normal. Knee jerks and anklejerks were brisk.

The following investigations were obtained:

- a) Uroflowmetry - Showed Obstructed Flow pattern, Qmax8 ml/sec, Voided volume 200ml.
- b) RGU (Retrograde Urethrogram) showed a 2 cm bulbar stricture.
- c) MCU (Micturating cystourethrogram) showed a moderately occlusive bladder neck.
- d) PSA=1.21 ng/ml.

<sup>1</sup>1<sup>st</sup> Year Post-doctorate Trainee, <sup>2</sup>Consultant, <sup>3,5</sup>Asst. Professor -- Department of Urology, RKMSV VIMS

e) USG KUBP showed normal upper tracts, postvoid residual urine of 60 CC and prostate volume=8.9 cc

Patient was on oral Metformin and Atorvastatin and did not respond to orally prescribed alpha blockers and Mirabegron. In view of persistent severe symptoms, he was admitted for further assessment and urodynamic studies. A possible diagnosis of bladder outlet obstruction along with neuro-vesical dysfunction due to cervical myelopathy was made.

Urodynamics showed a stable bladder with cystometric capacity of about 300 ml. A voiding detrusor pressure was not generated. A urodynamic diagnosis of an underactive detrusor was made.

At this stage the urological diagnosis was voiding dysfunction following previous TURP in an elderly male diabetic patient with cervical myelopathy. In view of radiological suspicion of anatomical obstruction, the patient was advised endoscopic assessment after informed consent.

At operation internal urethrotomy was performed for a 2 cm bulbar urethral stricture calibrating at 12 Fr. Bladder neck was moderately sclerosed with recurrent BPH (small adenoma). Internal urethrotomy, bladder neck incision and resection and revision transurethral prostatectomy was performed. Postoperative recovery was significant for development of distressing mixed incontinence (stress and urge incontinence). This was difficult to manage conservatively including oral anticholinergics.

Patient was therefore referred to the physiotherapy department for consideration of Pelvic floor muscle therapy.

Physiotherapy assessment suggested patient had weak pelvic floor muscles with poor endurance affecting his bladder behaviour and causing

urinary incontinence. Mixed urinary incontinence was present with 4-5 times nocturia and 15-20 times of day time frequency. He also had chronic constipation for 10 years with straining to pass motion and incomplete bowel emptying.

The Physiotherapy team had prescribed the following lines of management :

1. Pelvic floor muscle training
2. Pelvic floor muscles relaxation training  
Bladder diary with bladder habitual training
3. Bowel diary with bowel habitual training
4. Education about proper toilet sitting position
5. Education about pelvic hygiene
6. Home exercise program
7. The patient was advised Biofeedback assisted pelvic floor rehabilitation program for the next 10 weeks with 10 outpatient sessions and home training.

Patient reported a gradual improvement of his urinary symptoms, and at 12 weeks was dry, pad free with daytime frequency of 8 times and nocturia of 2-3 times with improved stream and voided volumes.

#### **Discussion :**

Urinary incontinence (UI) is the involuntary leakage of urine, causing symptoms of wide-ranging severity and affecting patient's quality of life. There are 3 major types of UI as recommended by the International Urogynaecology Association (IUGA), the International Incontinence Society (ICS), and the American Urological Association (AUA). Stress incontinence is the involuntary loss of urine with increased intraabdominal pressure or physical exertion (eg, coughing, sneezing, jumping, lifting, laughing, straining, exercising).

Urge incontinence is the involuntary loss of urine preceded by a sudden and severe desire to pass urine. Mixed urinary incontinence (MUI) is a combination of stress and urge incontinence and may take on the pathophysiology of both<sup>[1]</sup>.

Urinary incontinence is occasionally seen in men after prostatectomy. This may be due to sphincter weakness or due to detrusor overactivity or neurogenic causes. This patient had a possible neurological cause of bladder dysfunction (cervical spondylotic myelopathy) along with urethral stricture and bladder neck obstruction. Severe stress and urge incontinence had developed post operatively<sup>[2]</sup>.

Current guidance suggests intensive Pelvic Floor Muscle Therapy (PFMT) with biofeedback as non-invasive initial management for this condition. Other options of treatment for post prostatectomy urinary incontinence other than

PFMT include pharmacotherapy using Solifenacin and Duloxetine, vibration therapy, electrical stimulation and extracorporeal magnetic innervation as their main intervention. Eventually complex and invasive surgical treatments may become indicated<sup>[3]</sup>.

In this patient intervention using pelvic floor muscle training, electrical stimulation and biofeedback therapy was successful. Biofeedback generates consciousness about muscle activity, and helps maximizing the muscle contractions in the pelvic floor region while avoiding other muscle groups' contractions<sup>[4]</sup>.

#### **Conclusion :**

In this report, we have recorded the beneficial effect of modern physiotherapy techniques in regaining multifactorial post TURP urinary incontinence and should be widely adopted.

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## Case Report

# A Breakthrough in Cardiac Care : A Young Man's Journey to Recovery Through Endoscopic Surgery

Sandip Sardar<sup>1</sup>, Monalisa Datta<sup>2</sup>

### Abstract :

#### Background :

Right atrial myxomas are uncommon primary cardiac tumor that can cause significant clinical complications, including embolization, obstruction, and arrhythmias. Minimally invasive techniques, such as totally endoscopic surgery, have emerged as effective alternatives to conventional open approaches, offering advantages in patient rapid recovery and cosmetic outcomes. This case report details the successful management of a right atrial myxoma using a totally endoscopic approach.

#### Case Presentation :

A 23 year-old male presented with dyspnea, fatigue. Transthoracic and transesophageal echocardiography revealed a 8cm x 4cm mobile mass in the right atrium, attached to the interatrial septum. The patient was evaluated and found to be a suitable candidate for totally endoscopic surgical excision.

The procedure was performed under general anesthesia with peripheral femoral cannulation for cardiopulmonary bypass. Using a totally endoscopic approach, the tumor was excised completely along with its stalk, preserving the integrity of surrounding structures. The diagnosis of myxoma was confirmed histopathologically, with no evidence of malignancy. The patient had an uneventful recovery, with no complications

or residual tumor detected on follow-up echocardiography.

#### Conclusion :

This case demonstrates that totally endoscopic removal of a right atrial myxoma is a feasible, safe, and effective technique. It combines the benefits of minimally invasive surgery with excellent clinical and cosmetic outcomes, making it a valuable option in select cases. Further studies and reports are needed to expand the application of this technique in cardiac tumor management.

#### Keywords :

Right atrial myxoma, endoscopic surgery, minimally invasive cardiac surgery, cardiac tumor excision.

#### Case Report :

23 years old young man from Kolkata found his life disrupted by persistent health issues. Over several months, he experienced unexplained fever, significant weight loss, constant fatigue, and troubling breathlessness<sup>[2]</sup>. Daily activities became increasingly challenging, causing concern for both him and his family.

Seeking answers, he visited the Department of Internal Medicine at Ramakrishna Mission Seva Pratishthan (RKMSPP). The medical team conducted thorough evaluations but suspected that his symptoms might be linked to a cardiac issue. Recognising the need for specialised care, they referred him to the Cardiothoracic and

<sup>1</sup>Senior Consultant Cardiac Surgeon, <sup>2</sup>Senior Consultant Cardiac Anaesthesiologist, Department of CTVS, RKMSPP VIMS

Vascular Surgery (CTVS) unit for further assessment.



**Figure : 1 - Patient after surgery**



**Figure : 2 - Tumor specimen**

#### **Uncovering A Rare Cardiac Tumor :**

Advanced diagnostic tests, including echocardiography and CT scans, revealed the presence of a huge right atrial myxoma (8cm x 4cm) — a rare benign tumour located in the right atrium of the heart. Right atrial myxomas are exceptionally uncommon, especially of such significant size. These tumours can obstruct

blood flow and cause symptoms like those the patient was experiencing, making timely diagnosis and intervention crucial.

#### **A Minimally Invasive Path to Recovery :**

Traditionally, removing such tumours requires an open-heart surgery involving a sternotomy, where the breastbone is split to access the heart. This conventional approach, while effective, is highly invasive and demands a lengthy recovery period.

However, the surgical team at RKMS's CTVS unit proposed an innovative alternative: an Endoscopic excision of the tumour. This minimally invasive procedure utilises small incisions and specialised instruments, allowing surgeons to remove the tumour without the need for a large chest opening. Remarkably, this was the first time in India that such a procedure was performed for a huge right atrial myxoma.

#### **Successful Treatment and Rapid Recovery :**

The surgery proceeded successfully, with the surgical team meticulously excising the tumour endoscopically. The patient benefited from reduced surgical trauma, minimal postoperative pain, and a significantly shorter hospital stay. His recovery was swift — his fever subsided, energy levels rebounded, and breathing difficulties resolved. Soon, he was able to resume normal activities and look forward to a healthy future.

#### **Advancing Cardiac Care at RKMS :**

This landmark case signifies a major advancement in cardiac surgery within India. The successful endoscopic removal of a large right atrial myxoma highlights the potential of minimally invasive techniques to enhance patient outcomes. It underscores RKMS's commitment

to embracing cutting-edge medical procedures that prioritise patient wellbeing.

**Inspiring Hope for Others :**

The young man's journey from illness to recovery serves as a beacon of hope for others facing similar health challenges. His story emphasises the importance of comprehensive medical evaluation and the life-changing impact of innovative surgical interventions.

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**Acknowledgements :**

We extend our sincere gratitude to Ramakrishna Mission Seva Pratishthan for their unwavering support in facilitating this case. Their excellent infrastructure, collaborative environment, and dedication to advancing healthcare were instrumental in the successful execution of this procedure. We are deeply thankful for their trust and encouragement, which continue to inspire us in our pursuit of medical excellence.

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**Case Report****Hirayama Disease with Neuroimaging Feature in Specialized Flexion MRI — A Case Report**

Shrabanti Roychoudhury

**Abstract :**

Unilateral distal upper limb muscle weakness in young patients is frequently seen in neurological practise. Hirayama disease, a rare, nonfamiliar, monomelic amyotrophy causing anterior cervical cord compression and myelopathy is one of the rare causes. Clinically it is difficult to differentiate from motor neuron disease. Contrast enhanced MRI cervical spine in flexion can diagnose the disease with certainty. We illustrate such a case with representative MRI images.

**Key words :**

Hirayama, monomelic, amyotrophy, myelopathy

**Case History :**

20 years old young male presented in neurology outpatient department with gradually progressing left upper limb weakness for three years. It was accompanied by difficulty in gripping and weight lifting in same hand for last two years. Later, the patient noticed asymmetry in muscle bulk of two hand for last one year. However, there was no history of sensory deficit or fluctuating weakness. There was no history of trauma.

Clinical examination found normal higher motor and cranial nerve functions. Thenar, hypothenar and forearm muscles on left side showed clinically significant wasting. Biceps, triceps wasting was seen bilaterally, more prominent on left side. Resting tremor was noted in both hands.

Fasciculation was noticed in left Biceps and Pectoralis muscles. Deep tendon reflexes were decreased in upper limb as compared to lower limbs. Bilateral planterflexor reflex was preserved. With these clinical findings of lower motor neuron disease (MND), differentials of monomelic MND or cervical root compression or peripheral nerve entrapment were suspected. EMG and NCV findings were suggestive of segmental anterior horn cell disease.



**Fig 1 : MRI in neutral position of neck showed distal cervical cord thinning with no cord compression**



**Fig 2 : Flexion MRI showed anterior shifting of cervical cord and dural sac with prominent posterior epidural space**



**Fig 3: Post contrast flexion MRI showed crescent shaped posterior epidural enhancement from C4 to C7 vertebral level (white arrow)**

In this clinical background MRI cervical spine was advised. MRI showed thinning of cord at C5, C6 level. However, no cord compression was noticed in neutral position of neck (Fig 1). The patient returned to MRI department for additional MRI in flexion - extension position and post contrast study. Anterior shifting of cervical cord with dural sac was noted in flexion position of neck with prominent posterior epidural space (Fig 2). Post contrast study showed crescent shaped posterior epidural enhancement from C4 to C7 vertebral level (Fig 3). With these imaging findings in a lower MND type of upper limb involvement in a young individual, diagnosis of Hirayama disease was established. The patient was put on conservative management with immobilization in cervical collar and nutritional supplement. Short term follow up after three months showed satisfactory improvement of motor symptoms.

#### **Discussion :**

Hirayama disease is a rare, nonfamilial, monomelic amyotrophy originally described by Dr Hirayama from Japan in 1959 based on his initial observation of 12 cases of unilateral upper limb juvenile muscular atrophy<sup>[1]</sup>. It is also known as benign juvenile brachial spinal muscular atrophy, juvenile asymmetric segmental spinal muscular atrophy, juvenile muscular atrophy of the distal upper extremity, monomelic amyotrophy and oblique amyotrophy<sup>[2]</sup>.

Typically, it occurs in young Asian males between the ages of 15 to 25 years. Classical findings of the disease include either unilateral or asymmetrically bilateral muscular atrophy and weakness of the forearms and hands without sensory loss. After initial progression, the severity of the disease plateaus before an abrupt arrest<sup>[2,3]</sup>. This is predominantly a lower motor neuron

(LMN) pattern of the lesion of the cervical spine caused by chronic ischemic changes of the anterior horn cells<sup>[4]</sup>. As per the most acceptable theory, it occurs due to increased laxity of dura from its superior anchor of dorsal surface of C2-C3 vertebrae resulting in repeated forward cord movement with neck flexion promoting chronic microcirculatory changes in territory of anterior spinal artery and necrosis of anterior horn cells.

Radio imaging and Nerve conduction studies help to differentiate this disease from other causes of LMN diseases.

Specific imaging findings of specialized flexion MRI of cervical spine is confirmatory of diagnosis. It demonstrates anterior shift of cervical dural sac from the lamina with corresponding post contrast enhancement of posterior epidural venous plexus with or without epidural flow voids<sup>[5]</sup>.

Regarding management, fixation of spine with cervical collar is the first line of therapy which prevents flexion thus prevents microtrauma. Many surgical methods are also described for refractory cases.

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#### Conclusion :

Unilateral distal upper limb muscle weakness in young patients may be rarely caused by Hirayama disease. Although it is mostly self-limiting disease, few cases of residual disability have been reported in literature. Early diagnosis is crucial for successful treatment. This case report demonstrates the importance of specialized flexion MRI in diagnosis in absence of any obvious changes in routine MRI of cervical spinal. Specific neuroimaging findings in specialized flexion MRI as described in this case report is the mainstay of diagnosis.

#### Financial support and sponsorship :

There is no financial support and sponsorship associated for this case.

#### Conflict of interest :

There is no conflict of interest associated to disclose.

#### Acknowledgement :

I acknowledge the support of all physician and health worker associated with the management of this patient for their generous help to publish this article.

## Review Article

# Unconventional Modes of Ventilation : An Introductory Overview

Guruprasad Hassan Shankar

### Abstract :

In the last decade, the number of modes and patterns of mechanical ventilation available to the intensivist has significantly increased. Although the principles of ventilation remain uniform across the various modes and patterns available in different ventilators, functionally similar modes are called by different names in ventilators manufactured by different companies, further adding to the confusion in the terminologies. It is highly desirable for the intensive care practitioner to be aware of the functional principles involved behind these various modes, as well as utilise a uniform and standard taxonomy in their description. This review article aims to address this need with an overview of the taxonomy and brief descriptions of the breath sequence, ventilatory patterns, targeting schemes and modes of ventilation which are available across different mechanical ventilatory devices. The pros and cons of incorporation of assistive technologies in ICU practise are also briefly discussed.

**Keywords :** Mechanical ventilation, Intensive care, ICU

### Introduction :

In the constant struggle for better patient outcomes, the field of medicine needs to evolve continually in all its aspects. Mechanical ventilation is no exemption to this process. From the times of the polio epidemics in the 1950s,

when artificial respiration would be maintained by manual bagging even for weeks<sup>[1]</sup>, to development of complex devices and modes with microprocessor controlled ventilation<sup>[2]</sup>, mechanical ventilation has come a long way. However, in an effort to improve various aspects of patient comfort and outcomes including promoting patient-ventilator synchrony, optimizing patient work of breathing, minimizing pharmacologic sedation requirements, minimizing overall length of ventilation etc, efforts continue to be underway for constant development<sup>[3]</sup>. With progress in the understanding of factors contributing to ventilator induced lung injury, beginning with volutrauma, barotrauma and atelectotrauma and moving on to concepts of biotrauma, mechanical stress, strain and power, lung protection strategies<sup>[4,5]</sup> also need to evolve simultaneously. In the last decades, an explosion of new modes and patterns of ventilation has occurred (> 150 mode names in 30 different types of ventilators<sup>[6]</sup>). In this paper, an attempt is made to present the basic concepts and taxonomy involved in this development to better understand their characteristics and function.

### What is A Mode of Ventilation?

A description of the characteristics of newer modes requires a background knowledge of certain basic concepts. A full description of the taxonomy of modes of ventilation is beyond the

scope of this article. Readers are referred to “A Taxonomy for Mechanical Ventilation: 10 Fundamental Maxims” by Chatburn et. Al<sup>[6]</sup>

### **Breath sequence, ventilatory patterns, targeting schemes and mode of ventilation**

A breath sequence describes the sequential pattern of spontaneous and mandatory breaths to produce minute ventilation. The 3 breath sequences include :

1. Continuous mandatory ventilation (CMV): Spontaneous breaths are not possible between mandatory breaths because apart from the set rate, even patient-triggered signal during the trigger window produces a mandatory breath. For e.g., Assist control.
2. Intermittent Mandatory Ventilation (IMV): Breath sequence for which spontaneous breaths are possible between mandatory breaths. If the IMV is synchronised to patient efforts, then it is referred to as Synchronised Intermittent Mandatory Ventilation.
3. Continuous Spontaneous Ventilation: All the breaths are spontaneous. These spontaneous breaths may or may not be supported by positive pressure.

Ventilatory pattern is a breath sequence (CMV, IMV or CSV) with a designated control variable (pressure or volume) for both mandatory and/or spontaneous breaths.

There are 5 basic ventilatory patterns. Volume control (VC) – CMV, volume control - IMV, pressure control (PC) CMV, pressure control IMV, Pressure support (PS) – CSV.

### **Targeting Scheme :**

It refers to the characteristics of the relationship between inputs given by operator and outputs that come from the ventilator to achieve a specific ventilatory pattern. A target refers to the

predetermined goal of ventilator output. Examples : set-point, dual, bio-variable, servo, adaptive, optimal, and intelligent

### **Modes of ventilation :**

A proper description of the mode of ventilation includes 3 components: control variable, breath sequence, and targeting scheme(s). For e.g., VC-CMV with set-point targeting.

### **Conventional versus advanced modes of ventilation :**

With ongoing adaptation of emerging modes of ventilation in clinical practise over the years, the frontier line between strictly conventional and “newer modes” keeps moving with time. One significant manner in which the advancement has occurred in developing newer modes includes the incorporation of feedback systems leading to an intra-breath or inter-breath variability in ventilator output. With a dynamic disease process and high degree of complexity and number of variables that need to be considered to optimise ventilatory settings, need for continuous assessment and repeated re-adjustments of ventilator parameters to achieve goals of ventilation is the practical norm.

### **Open and closed loop systems :**

If the ventilator doesn't obtain information about the ongoing changes in respiratory system for example, patient ventilatory drive, respiratory mechanics, leaks etc and/or doesn't adapt to the feedback so obtained to automatically optimise the settings, then the output is completely dependent on operator settings which again varies based on patient characteristics.

An open loop system may be represented as follows: Input (operator set, for e.g., pressure, flow)? ventilator delivered gas flow? patient

characteristics (e.g., impedance of the respiratory system)? output (after being affected by patient characteristics)

However, if the output so delivered to the patient is in turn measured by the ventilator, and the difference between the intended output and the delivered output, or the error, is computed and used as a feedback signal for the ventilator to re-adjust the input to achieve the desired output, it marks the beginning of a closed loop system. This feedback control mechanism aims to reduce the error and minimise the effects of disturbances in the real world scenario. Whatever is the degree of automation achieved by the device, it is the prerogative of the clinician to recognise if the clinical goals of ventilation are being achieved, if not – to manually close the loop as much as practicable.

All modern day ventilators use closed loop control in varying degrees. An understanding of the different types of ventilator control systems helps to clarify the seeming complexities of the multitudes of ventilator modes marketed by different companies under a variety of names and allows to appreciate their capabilities in relation to needs of different patient subtypes. There are 7 ventilator control systems<sup>[7]</sup>.

### **1. Set point control :**

A parameter is preset whose limit (as set by operator) cannot be crossed while delivering the breath. For e.g., a pressure limit is set. If the pressure sensor detects a difference between what is set and what is delivered, it feeds back to the flow regulator to readjust and obtain the set pressure. Since volume is measured as flow\*time, volume preset is monitored by the flow sensor and adjusted accordingly to achieve a preset tidal volume. This mechanism makes

possible volume and pressure controlled breaths in their respective modes. Set point control systems are present in all ventilators<sup>[7]</sup>.

### **2. Auto set point control :**

Delivering a set pressure leads to the generation of volume. Setting a volume preset in turn requires a certain amount of pressure to deliver that volume. A ventilator breath can be pressure OR volume controlled, never both together. However, during the course of a single inspiration, it is possible for the ventilator to switch between pressure control or flow control (volume control) methods of breath delivery in accordance with operator set priorities.

For example volume assured pressure support<sup>[8]</sup>. In a pressure support mode, pressure is the independent and volume is the dependent variable. Suppose pressure is preset but the ventilator has to assure a particular tidal volume also for each breath. The inspiration begins as a pressure support breath, but if the given pressure support is unable to achieve the set target tidal volume, the breath changes within that single inspiration to a constant flow pattern (characteristic of a volume control breath) which continues till the set tidal volume is achieved<sup>[9]</sup>.

Also, vice versa, the breath may start as a volume control breath and switch to pressure control during the inspiration. e.g., VC-CMV + pressure limited ventilation.

### **3. Servo control :**

This system operates on a feedback mechanism, where the output proportionately changes in synchronous relation to a varying input to achieve a desired effect. For example if the amount of support provided by the ventilator changes in proportion to the varying amount of respiratory drive provided by a patient, then poor patient

efforts will be supplemented by a larger support and good efforts by the patients will receive a proportionately smaller support, thus responding to a changing ventilatory demand with high fidelity and also a high synchrony with the breathing effort.

This is in contrast to more conventional modes, like pressure support ventilation where the same amount of set pressure support is delivered to every breath regardless of the magnitude of patient effort.

This mechanism is applied in three ways

Signal (Inspiratory pressure delivered proportional to this)	Ventilator mode derived from this mechanism
Square of inspiratory flow	Automatic tube compensation
Electrical signal from the diaphragm	NAVA (neurally adjusted ventilatory assist)
Patient generated flow	Proportional assist ventilation

**Table 1: Examples of signals used in servo control and the modes derived from them**

#### 4. Adaptive control :

In this system, one set point is automatically adjusted by the ventilator to maintain a different operator selected set point. As discussed before, set point control operates within the span of a single inspiration, whereas adaptive control introduces a second feedback loop which adjusts the ventilator output over different breaths. Because of this, it is also called a dual control breath to breath system<sup>[10]</sup>.

Example – adaptive pressure control or pressure regulated volume control. This is a pressure-controlled inspiration with a volume target (in volume target unlike volume control, tidal volume may be more or less than set volume)<sup>[11]</sup>. Inspiration is initiated in the pressure-controlled mode.

Once the breath is delivered and the machine receives feedback about the delivered volume, it “decides” whether to stay unchanged or to increase/decrease the inspiratory pressure in order to reach the dependent variable (the preset tidal volume), before cycling on to expiration. Thus ventilator adjusts to the dynamic changes

in the respiratory mechanics, by changing the inspiratory pressure required to deliver the set tidal volume.

#### 5. Optimal control :

In optimal control, automation is taken a step further by allowing the ventilator to decide both volume and pressure set points based on a mathematical model to optimise a performance characteristic. In adaptive support ventilation for example, only the target minute ventilation, PEEP, FiO<sub>2</sub> and maximum pressure alarm limit is set by the operator. Both the inspiratory pressure and the respiratory rate is decided by the ventilator to provide the target minute volume with the minimum work of breathing by applying a mathematical model<sup>[12]</sup>. Patients who are unable to trigger the ventilator are given pressure-control breaths. If trigger is present, pressure support is provided.

#### 6. Knowledge based control :

This ventilator control system takes the idea of automation a step further in evolution from a mathematical model, to a system of rules derived from human expert knowledge. The set points

are automatically adjusted by applying a system of rules derived from expert human knowledge. A practical example of this is in the form of an automatic weaning mode which uses predefined acceptable ranges for spontaneous respiratory rate, tidal volume and end tidal CO<sub>2</sub> to automatically adjust inspiratory pressure support<sup>[13]</sup>.

#### 7. Artificial neural network control :

We have briefly studied the step wise evolution of closed loop feedback systems for ventilator control from set point to knowledge based. A further and perhaps theoretically the last step would be a self learning system based on artificial intelligence which, in contrast to static rule based systems, models the complex relationships between ventilator input-output real time in

patients and acts as a decision support system rather than directly controlling the ventilator<sup>[7]</sup>. Such systems have been proposed experimentally<sup>[14]</sup>, but currently not come to the point of routine clinical use.

#### Assistive technology : true progress or glamorous distraction?

Exciting though the advancements be, advanced modes, specially those that employ a high degree of automation come with their set of practical disadvantages. Sensor failure, unpredictable disturbances and software errors are potential issues in all automated system. Safety concepts are important to be developed to prevent patient harm<sup>[15]</sup>. All closed-loop control systems are only as good as their feedback signals.

Mode	Feedback signal	Causes of inaccurate feedback	Consequences
Adaptive Support Ventilation (ASV)	Target volume	Leaks	Need to go to conventional mode
NAVA	Edi signal	Improper catheter position	Revert to conventional mode
Physiologic model based (PAV)	Respiratory system compliance	High respiratory drive	Improper control of airway pressure
Mathematical model based (ASV)	Assumption of normal minute ventilation requirement, normal dead space to volume ratio	If pathophysiology is different, these assumptions do not hold	Unpredictable consequences
Smartcare/PS (physician initiated autoweaning mode)		Patient not ready to wean	Cannot tolerate reduction in support
Smart care/PS	Assumes a normal bicarbonate	Often abnormal in ICU patients	May not function normally

**Table 2 : Causes and consequences of inaccurate feedback in some closed loop ventilator modes**

More advanced the mode, more the need for vigilance and understanding on the part of clinicians. Automation may promote a callous “set it and forget it” attitude<sup>[16]</sup> – and that is used as a selling point, which is also exactly why it could be more dangerous as well. Another disadvantage of highly advanced artificial-intelligence systems is that they have limited transparency, meaning that the way set-points are adjusted is not easily understood because of the complex interaction of many rules. Furthermore, such rules may be subjective (ie, based on expert opinion, leading to increased complexity). To date, studies haven't shown evidence of improved hard outcome parameters for more automated modes in comparison to more conventional ones<sup>[5, 17-19]</sup>. The situation is

more complex for usage in pediatric patients, as studies are generally not available in this age group<sup>[20]</sup>. Add to these problems, the high costs<sup>[15]</sup> and usefulness of highly specialised modes being limited to small subsets of patient populations. Studies<sup>[13]</sup> have noted that the advantage of artificial intelligence systems may be less noticeable in environments where natural intelligence is plentiful.

#### **Alternative approaches to mechanical ventilation :**

The method of advancement in examples given so far are based on improvement in the targeting schemes. It must be noted however, that the ventilatory patterns in these modes mostly rely on pressure as the control variable as shown in the table.

Mode	Central feature
Dual control	Pressure controlled inspiration but with a volume target
Adaptive support ventilation	Closed loop, automatic switch between pressure control, pressure SIMV and pressure support based on patient effort.
Proportional assist ventilation	Delivery of variable pressure support based on measurement of patient effort.

**Table 3 : Examples of advanced modes using pressure as a control variable.**

In the specific context of ARDS leading to refractory hypoxemia, unconventional methods of applying open lung strategy while reducing ventilator induced lung injury have been developed. These are airway pressure release ventilation (APRV) and high frequency oscillatory ventilation (HFOV). The aim is to improve oxygenation by keeping the lung uniformly inflated at a relatively higher pressure for an extended period of time.<sup>[21]</sup>

In APRV, which is a time cycled, pressure limited, inverse ratio mode, the lung is kept inflated with a relatively high pressure called as P-high for a

relatively long period of time called T-high, and then deflated to a low pressure called P-low for a short period of time called T-low. The patient is allowed to breathe spontaneously through out, reducing the need of sedation and precluding paralysis. This also provides for better hemodynamics and improved patient ventilator synchrony. HFOV uses an oscillatory pump to deliver active inspiration and expiration, producing pressure oscillations around a relatively constant mean airway pressure. It delivers very low VT (Tidal Volume) at high breathing frequencies and is designed to recruit and

maintain adequate end-expiratory lung volumes, attenuate atelectrauma, and improve oxygenation.

### Conclusion :

With advent and rapid advances in assistive medical technologies in mechanical ventilation, clinicians are confronted with a familiar difficulty – over-reliance. An over dependence on automated technology runs the risk of slipping into a predicament where “the tail wags the dog instead of a dog wagging its tail”. Ultimately,

all technology is meant to be a tool, and as long as physicians remain medically, ethically and legally responsible for their patients, they also hold the responsibility for oversight of the tools used in that process. Hence, while incorporating any unconventional technology in routine clinical practise, understanding of the pros and cons, availability of evidence, matching individualised patient needs with mode characteristics, troubleshooting abilities - all play a role to achieve better outcomes.

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**Ramakrishna Mission Seva Pratishthan Vivekananda Institute of Medical Sciences  
99, Sarat Bose Road, Kolkata - 700026**

Ramakrishna Mission Seva Pratishthan Vivekananda Institute of Medical Sciences is a multispeciality NMC recognised post graduate teaching hospital catering to all strata of the society especially the middle, lower middle class population of West Bengal.

It's services has been recognized in national and international arena. Its services are guided by the principles of Ramakrishna Mission envisaged by Swami Vivekananda and blessed by Thakur Sri Sri Ramakrishna Paramhansa and Ma Sarada Devi.

The hospital has bed strength of 684, distributed as follows : General Medicine, Endocrinology, Gastroenterology, Nephrology, Psychiatry, General Surgery (Paediatric Surgery, Plastic Surgery, Neuro Surgery), Obstetrics, Gynaecology, Postpartum (Family Welfare Unit), Paediatric Medicine, Ophthalmology, Glaucoma, Retina, E.N.T. Surgery, Hearing and Speech Therapy, Dentistry/Maxillofacial

Surgery, Dermatology, Orthopaedics, Spine Clinic & Infertility Clinic, Club-foot, Neurology, Urology, a fully equipped Cath Lab, CCU, HDU. It also has special clinics for Anaesthesiology, Heart, Physiotherapy, Cardiology, Cardio Thoracic & Vascular Surgery (CTVS), Arthroscopy, Immunization, Well Baby Clinic, Haematology, Pain Clinic. The special needs of these departments and units are met by the departments of Radiodiagnosis, Blood Bank, Pathology, Biochemistry & Chemotherapy unit. The Community Health Service unit serves both urban and rural patients.

All the departments are fairly well equipped.

It offers post graduate teaching courses as well as nursing (College and School) under West Bengal University of Health Sciences and Paramedical Courses (Physiotherapy, Medical Laboratory Technician, Radiology, Neuroelectrophysiology, OT and Critical Care Technician Courses, State Medical Faculty.

## Camp News

### ENT And Maxillofacial Camp at Giridih

S. Sudrania<sup>1</sup>, N. Sarkar<sup>2</sup>, K. Chaudhuri<sup>3</sup>

**रोटरी गिरिडीह**  
R.I. Dist. 3250, Club ID - 16023

**नाक, कान एवं गला रोग का निःशुल्क ईलाज एवं सर्जरी शिविर**  
दिनांक 10 से 12 फरवरी 2024 तक

कोलकाता के प्रसिद्ध नाक, कान, गला रोग विशेषज्ञ डॉ० रंजन राय चौधरी एवं उनके साथ आए डॉक्टरों की टीम द्वारा ईलाज एवं ऑपरेशन किया जाएगा।

- कान के पर्दे में हुए छेद का ऑपरेशन किया जाएगा।
- नाक की टेढ़ी तर्ही जिसके वजह से सांस लेने में दिक्कत होती है उसका ऑपरेशन किया जाएगा।
- नाक में बड़े हुए गॉस का ऑपरेशन किया जाएगा।
- जन्मजात कटे होठ और तालू वाले बच्चों का मुफ्त सर्जरी
- ट्यूब के बगिये में हुए इन्फ्लेमेशन का छोटा ऑपरेशन किया जाएगा।
- कान में हुए गंदगी का दूरबीन द्वारा सफाई किया जाएगा।
- नाक में हुए बीमारी का दूरबीन द्वारा जाँच किया जाएगा।
- आवाज में हुए बदलाव को दूरबीन द्वारा आवाज की नली का जाँच किया जाएगा।

**पता- रोटरी आई होस्पिटल, गिरिडीह हाई स्कूल के सामने**

President Rtn. Manish Tarway	Project Chairman Rtn. Amit Tulsyan	Secretary Rtn. Ashish Tarway
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#### Introduction :

Giridih, situated in the heart of Jharkhand, frequently encounters difficulties in accessing specialised medical services. Recognizing this need, the members of the Rotary Club of Giridih took an initiative to bridge the gap by bringing together skilled medical practitioners, advanced equipment and dedicated volunteers in the form of a comprehensive Ear, Nose and Throat (ENT) and Maxillofacial surgery including Cleft Lip corrections camp. The first ENT camp was organised by the Club over 30 years ago with specialists from the Dept. of ENT Surgery, Ramakrishna Mission Seva Pratishthan. The current team leader has been involved with these annual camps for several years now<sup>1</sup>, barring the COVID 19 pandemic.

The camp aimed to provide accessible healthcare services to the community, particularly focusing on ENT and Maxillofacial surgery under the guidance of Dr. Ranjan Raychowdhury, Dr.

Suman Das and Dr. Krishnendu Chaudhuri. The 3-day camp was carefully planned to meet the needs of individuals of all ages. It offered a range of services including screenings, consultations, laboratory investigations and treatment procedures. Anaesthesia administration was included in the camp to ensure patient comfort and safety during major and minor ENT and maxillofacial surgeries including cleft lip.

This report summarizes the activities, outcomes, and impact of the camp that took place from February 10th to 12th, 2024.

#### Anesthesia Machine :

A portable anaesthesia machine is a compact device designed to deliver anaesthetic gases and medications to patients during medical procedures outside of traditional hospital settings, such as in ambulances, field hospitals, or remote locations where access to standard anaesthesia equipment may be limited.

<sup>1</sup>Junior Resident, <sup>2</sup>Senior Resident, <sup>3</sup>Assistant Professor, Department of Anesthesiology, ICARE Institute of Medical Science and Research & Dr. B. C. Roy Hospital, Haldia)



It utilizes compressed gases such as oxygen which is stored in cylinder attached to the machine. The machine regulates the flow of gases to the patient through a flowmeter. The flow rates are adjusted as per the patient's need and type of anesthesia being administered. Built-in Vaporizers are attached to the machine through which liquid anaesthetic agents (Sevoflurane used here) with the carrier gases are converted into vapor for inhalation by the patient. Breathing Circuit consists of breathing tubes (inspiratory and expiratory ports), valves, Y-piece, endotracheal tubes, facemask, breathing bag and scavenging system to remove excess gases. The patient inhales the anaesthetic gas mixture through a breathing mask and exhales into the circuit. Basic monitoring devices such as pulse oximeter, blood pressure, electrocardiography, and capnography to measure end-tidal carbon-dioxide levels, alarms to alert any

issues such as low oxygen levels or high pressure and bag-mask ventilation are attached with the portable anaesthesia machine so that the patient's vital signs are continuously monitored. Thus ensuring, patient's safety and adjustments can be made with the help of these measurements. Besides this the safety devices including self-inflating manual resuscitation bag, airways, LMA's are kept for emergency measures. The administration of anaesthesia is complete and then the patient is reversed by discontinuing the flow of anaesthetic gases, giving the reversal agent as per the used muscle relaxant and patient begins to recover from anaesthesia.

In summary, a portable anaesthesia machine functions similarly to a standard anaesthesia machine but is designed to be compact, lightweight, and easily transportable, allowing for anaesthesia administration in diverse medical settings.<sup>[2]</sup>



The first day began after an overnight train journey from Kolkata, arriving at the Rotary Eye Hospital at 9:30 a.m. Preregistration for the camp had been carried out by the Club in the previous week to streamline the process and manage patient flow. Screening of suitable surgical cases

began, along with regular consultations, by the team (ENT, Maxillofacial surgeons and anaesthesiologists).

Depending on the complaints and symptoms, patients underwent diagnostic evaluations such as otoscopy, nasal endoscopy and laryngoscopy, and dental examinations. It contributed to the accurate diagnosis of underlying conditions and formulation of the treatment plans.

Simultaneously, preparatory measures were undertaken. Medical equipment and supplies were organized, the operation theatre was set up, informed consent obtained and documented after explaining the procedures risks, benefits, and post-operative care instructions to ensure the smooth functioning of the camp. Prior to anaesthesia administration, patient underwent a thorough pre-operative assessment, airway assessment and basic laboratory investigations to ensure patient safety and minimize anaesthesia related complications.

At OPD 77 patients consulted, and 12 procedures were carried out, which included both major and minor surgeries under monitored anesthesia. One major bilateral cleft lip surgery in a 6 months old baby, was performed using Laryngeal mask airway (LMA) of size 1 under anesthesia surveillance. The operation was completed successfully, and the patient was then transferred to the ward for post-operative care.

### **Day 2: Treatment and Surgeries :**

On the second day, the focus shifted to treatment and surgeries. At the OPD, 91 patients were examined, and 21 major and minor operations were carried out. A range of issues including hearing impairments, sinus problems, throat infections, dental problems and cleft lip corrections (both unilateral or bilateral) were addressed and simultaneously treatment were given.

One major surgery of adult rhinolith was operated under general anesthesia using bag ventilation. Six cleft lip surgeries were performed including 4 unilateral and 2 bilateral of age group ranging from 6 months to 1.5 years under LMA of the suitable sizes. Two minor ENT surgery including grommet insertion and removal of foreign body were performed using Dexmedetomidine and Ketamine combination in age group 8 and 14 years respectively amongst other minor and major surgeries under monitored anesthesia and the patients shifted to ward for the post-operative care. Patients who had major surgery stayed in the hospital for one day for post-operative care, while those who had minor surgery were discharged after feeling fit.

Throughout the day, we worked tirelessly, demonstrating exceptional skills and dedication to providing high-quality care to all patients. By working together, we ensured efficient workflow and optimal patient outcomes.



### Day 3 : Follow-up :

The final day of the camp was the shortest, mainly focused on post-operative care and follow-up consultations. 38 patients were consulted at the OPD. Personalized attention was given to the patients who had surgeries to monitor their recovery progress and address any concerns.

The community members were instructed to seek

timely medical assistance for any health-related issues. Educational sessions were conducted to raise awareness about ENT and oral related infectious and non-infectious diseases, Cleft lip prevention, and the significance of anesthesia safety.

### Conclusion :

The three-day Rotary Camp concluded with a

feeling of fulfillment and accomplishment. We encountered various cases ranging from routine procedures to more complex treatments, highlighting the importance of such camps in addressing a wide spectrum of healthcare needs within our community. Additionally, the camp has served as an educational platform, offering valuable learning opportunities for both experienced professionals and aspiring students.

**Outcome and Impact :**

The Rotary Camp has become a source of hope for those who are suffering from ENT problems,

cleft lip conditions, and requiring anesthesia services. Numerous patients experienced significant improvements in their health conditions, with successful surgeries and treatments that addressed their medical needs, enabling them to lead healthier and more fulfilling lives. The camp empowered communities by giving them access to essential medical services and instilling awareness about preventive healthcare practices. By working together, we can make a difference and improve the lives of those we serve.

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## **Abstracts from The 36th Annual Scientific Conference of The Ramakrishna Mission Seva Pratishthan Vivekananda Institute of Medical Sciences, November, 2024**

### **Hearing Outcome with Intra-tympanic Steroid in Idiopathic Sudden Sensorineural Hearing Loss (ISSNHL)**

**Anurag Mandal**

*Senior Resident, Department of ENT & Head Neck Surgery*

**Introduction :** Idiopathic sudden sensorineural hearing loss is a common problem with crippling results having annual incidence of 7.6/100000 in India. Intratympanic steroid (ITS) administration is advocated now along with Systemic steroid as a combined primary or secondary (rescue) therapy.

**Objective :** To evaluate improvement in hearing status after ITS.

**Method :** Retrospective study comprising 20 randomly selected patients diagnosed with

ISSNHL treated in our department and followed up for 4 weeks. Improvement in hearing outcome studied and compared with pre-treatment values.

**Result :** Significant number of patients have demonstrated improvement in pure tone threshold in most of the basic frequencies studied with maximum improvement in mid frequency range.

**Conclusion :** ITS being an effective treatment modality for ISSNHL should be considered as primary or secondary therapy.

### **Diverse Scenario of Parathyroid Adenoma -- Our Experience**

**Bappaditya Kar**

*2nd Year Postgraduate Trainee, Department of ENT & Head-Neck Surgery*

➤ **Introduction :**

Approximately 30% of all salivary gland tumours are Mucoepidermoid carcinoma (MEC). They are thought to arise from pluripotent excretory duct cells. They are highly variable in behaviour graded into low, intermediate & high. Nospecific evidence-based treatment guidelines exist for MEC.

➤ **Objective :**

➤ To describe importance of involving a multidisciplinary team

➤ To assess complications of management

➤ **Methods :**

➤ We present our experience with 5 cases of MEC between 2016-2024

➤ **Results :**

➤ In the 8 year period from 2016 to 2024, 5 patients underwent management for MEC.

➤ Two children had low grade MEC of the submandibular and parotid gland respectively, and were treated by surgery alone. They remain well on follow up after 5 and 7 years.

- Two adults had MEC of the hard palate: one low grade and one intermediate grade. They underwent wide excision and selective neck dissection and remain well after 4 years and 2 months.
  - One adult had recurrent intermediate grade MEC of the parotid with skin involvement. She had wide local excision with flap reconstruction and post-operative radiotherapy but developed pulmonary and dural metastases within a year.
- **Conclusion :**
- Low grade MEC may be treated by surgery alone with good prognosis.
  - Intermediate MEC may be aggressive, requiring radiotherapy. All patients should be discussed by a multidisciplinary team for deciding the treatment plan.

## **Bilateral Keratoglobus in Down Syndrome**

**Mriganka Sarkar**

*1<sup>st</sup> Year Postgraduate Trainee, Department of Ophthalmology*

### **Introduction :**

Keratoglobus is a rare corneal ectasia characterized by globular protrusion of cornea associated with diffuse limbus to limbus thinning. Down Syndrome is a common genetic abnormality that can affect most parts of the eye.

### **Aims and Objective :**

To report a case of Bilateral Keratoglobus in Down Syndrome

### **Methods :**

A 30 years old male patient who is a known case of Down syndrome presented with gradual onset painless progressive diminution of vision in both eyes and it was not fully improving by spectacle correction. O/E- Global protrusion & thinning of cornea in both eyes were found on Slit-lamp examination.

### **Results :**

Before Cataract surgery, Biometry was done which revealed High Myopia (Axial length of RE- 27.56 mm & Axial length of LE- 26.46 mm) & astigmatism of more than -9D in both eyes. Diffuse corneal thinning & protrusion in both eyes with a maximum keratometry value of 60.3D in right eye & 54.2D in left eye were noted on Corneal topography. In the right eye, thinnest pachymetry value was 446 microns & in the left eye, thinnest pachymetry value was 442 microns.

### **Conclusion :**

Bilateral Keratoglobus in patient with Down Syndrome has not been reported before & therefore, it is presented for its rarity.

## **A One-eyed patient with Eales' Disease Associated with Diffuse Cerebral Atrophy Following Traumatic Brain Injury**

**Sathi Samadder**

*1<sup>st</sup> Year Postgraduate Trainee, Diploma in Ophthalmology*

### **Purpose :**

Eales' disease is an idiopathic occlusive vasculitis involving the mid-peripheral retina that is characterized by retinal venous inflammation (periphlebitis), capillary nonperfusion, vascular occlusion, vitreous hemorrhage. Diffuse brain injury due to close cranial trauma showed abnormalities in cerebral perfusion and decreased perfusion in affected areas. We report an unusual occurrence of Eales' disease associated with traumatic brain injury.

### **Method :**

A one-eyed young adult (32yrs) male was presented with complaints of floaters and decreased vision in right eye along with neurological symptoms like difficulty in verbal communication, loss of reasoning ability; and decline in reading comprehension. Visual acuity was RE6/12; IOP by NCT-(RE) 12mmHg; Anterior segment - normal; Fundus examination showed perivascular exudates and cuffing with venous tortuosity, venous obstruction, capillary non-perfusion, superficial retinal haemorrhages;

HVF 60-4 showed peripheral constriction; HVF 30-2 showed inferior Arcuate defect with VFI 86%, GHT- outside normal limits, MD -9.65dB <0.5%; MRI brain showed diffuse cerebral cortical atrophy; Relevant blood tests were done. A working diagnosis of Eales' disease Stage 2A was done as per Saxena & Kumar.

### **Result :**

He was treated with laser photocoagulation and systemic corticosteroids (Tab Prednisolone). Patient's vision improved to 6/6(RE). He was advised for 6 monthly follow up and subsequently Fundus Fluorescein Angiography in Right eye was done which showed chorio-retinal atrophic changes.

### **Conclusion :**

Early intervention in one eyed patient to save the vision and prevent recurrence of retinal hemorrhages was done. The association of Eales' disease with traumatic brain injury is presented for its unusual occurrence and association. It might not be causal, but has great clinical significance, harboring both deadly vision and life threatening diseases on the same soil.

## **A Randomized Controlled Trial Comparing The Efficacy of Oral Progestogens in The Management of Threatened Miscarriage**

**Bidisha Banerjee**

*3<sup>rd</sup> Year Postgraduate Trainee, Department of Obs. & Gynae*

Vaginal bleeding during the first trimester is associated with an approximate 5.5%-42.7% risk for subsequent complete miscarriage.

**Aims & Objectives :** To compare the efficacy

of oral micronized progesterone sustained release and oral Dydrogesterone in the management of threatened miscarriage.

**Materials & Methods :** It was an open label

Non Inferiority Randomized Control Trial conducted for a period of one year. There were 122 subjects (who fulfilled the inclusion and exclusion criteria) who were divided into two groups. 61 patients were treated with Dydrogesterone and were put under group A and the rest were treated with oral NMP-SR (natural micronized Progesterone sustained release) were put in group B. They were followed up to see the outcome of pregnancy and other associated adverse events. The duration of bleeding post treatment was also noted. The neonates were also followed up for any congenital abnormality and androgenic effects. Both the drugs were compared for their efficacy and non inferiority for the treatment of threatened miscarriage.

**Results :** In our study both oral Dydrogesterone and oral NMP-SR were comparable from efficacy point of view in the treatment of threatened miscarriage. Oral NMP-SR is non inferior to Dydrogesterone in the management of threatened

miscarriage. The comparative outcome of different events of pregnancy in patients receiving oral Dydrogesterone and oral NMP-SR was non significant. In oral NMP-SR group there was the feasibility of single dose administration and hence better compliance. Given the established efficacy of oral NMP during more than 30 years' use and the enhanced pharmacokinetics and safety profile of NMP-SR, global interest in NMP-SR might be expected in the near future. In our study 90.99% of patients with threatened miscarriage had a successful outcome with oral Progestogen.

**Conclusion :** Our study shows that Progestogens increase live births in threatened miscarriages. Given these results and the apparent absence of serious adverse effects of Progestogens in mother and fetus and the moderate certainty evidence of benefit, most women with threatened pregnancy loss are likely to choose to receive oral Progestogens.

### **Acute Abdomen in An Adolescent Girl : A Rare 'Twist' in The Tale**

**Ariba Akhtar**

*2<sup>nd</sup> Year MS Postgraduate Trainee, Department of Obs. & Gynae*

#### **Introduction :**

Acute abdomen in an adolescent female can be due to diverse conditions. While some are trivial and self-limiting, others can be life-threatening. Involvement of the Genito-urinary system is common but adnexal torsion although infrequent, is a significant entity in young girls. It is a gynecological emergency affecting 2-3% females. Typically they present with non-specific symptoms, wherein both the ovary and the fallopian tube are involved. But seldom does the fallopian tube undergo torsion in isolation and become a diagnostic ordeal.

#### **Case :**

A 15year old girl presented with acute lower abdominal pain with vomiting since 2 days not relieving with analgesics. Her menstrual cycles were regular. Though she was afebrile and normotensive there was tachycardia and tenderness in the left iliac fossa. Routine blood and urine tests were normal except a mildly raised total leucocyte count. An emergency Ultrasonography revealed a cystic lesion (6x4 cm) adjacent to left ovary without doppler flow and suggested CECT to rule out torsion. CECT further revealed two cystic lesions- ?

hydrosalpinx, ? left ovarian cyst torsion. Emergency laparotomy was done with a provisional diagnosis of ovarian torsion with persistent abdominal pain and tachycardia. Left hydrosalpinx with gangrenous torsion of the distal enlarged half of the tube was found. Both ovaries and right fallopian tube were normal. A total salpingectomy was performed and sent for histopathology, which suggested salpingitis and hematosalpinx / haemorrhagic paratubal cyst with extensive necrosis following acute torsion.

#### **Discussion and Conclusion :**

Isolated fallopian tube torsion is a rare cause of acute abdomen, with an approximate incidence of 1:500000. Predisposed due to several factors like, hydrosalpinx, para-ovarian/para-tubal cyst. Definitive diagnosis is difficult and made retrospectively due to lack of specificity of symptoms and signs. High index of suspicion is therefore required with a normal appearing ovary in presence of features of torsion. Early diagnosis and treatment is key to salvage a functional tube to prevent future subfertility.

### **Management of A Rare Cranio Facial Anomaly -- Crouzon's Syndrome**

**Dipsankar Jana, Sayantan Nag, Suman Das**

*Department of Maxillofacial Surgery*

#### **Introduction :**

Crouzon's syndrome is a genetically inherited condition characterized by craniosynostosis resulting in cranial and facial deformities. It is a fairly rare entity estimated to occur in 1 in 25,000 newborn worldwide. Here we present a case of Crouzon's syndrome who appeared with Kleeblattschaedel Syndrome as well as severe proptosis and relative hypoplastic maxilla.

#### **Objective :**

Our objective is to review clinical features of Crouzon's syndrome, summarize the treatment and describe the role of health professionals working together to manage this condition.

#### **Method :**

A detailed examination and multi-disciplinary diagnostic as well as treatment approach was employed.

#### **Result :**

The child's condition improved following frontal bone, anterior cranial fossa and midface advancement in a multistage surgical approach.

#### **Conclusions :**

The management of craniosynostosis is complex and difficult, requiring a multi-stage surgical approach which will provide the best patient outcomes.

### **Arginine Vasopressin Deficiency (AVP-D)**

**Ashmita Giri**

*2nd Year Resident, Deptment of General Medicine, Ruby General Hospital, Kolkata*

#### **Introduction :**

Arginine vasopressin deficiency (AVP-D) formerly known as central diabetes insipidus

(DI) is a rare disorder with diverse etiologies. Approximately 30-50% cases of AVP-D are idiopathic. Hypophysitis is a rare etiology of

AVP-D which consist of inflammation of pituitary gland. Among all other presentations of hypophysitis, diabetes insipidus kind of presentation is quite uncommon.

**Case Description :**

A 43 year old female admitted with complain of polyuria and polydipsia of around 15-20 litres in a day since last 4 months. Her urine and serum osmolality was done through freezing point depression technique where reports were 86mOsm/kg and 297mOsm/kg respectively. Vasopressin test was done where AVP-D was diagnosed. MRI pituitary with gadolinium contrast was done where stalk thickening was

noted (>4mm). IgG4 disease, germinoma, other germinomatous lesion, sarcoidosis was ruled out. ANA profile showed SSA native antibody positivity with low titre. She was started on Desmopressin and responded well.

**Conclusion :**

Any patient presenting with polyuria and polydipsia should be properly investigated because continuing symptomatic management without addressing the etiology can be detrimental. AVP-D is a rare presentation of hypophysitis which we should keep in mind. Proper workup with follow up is essential.

**Primary Sjogren's Syndrome Presented as Thrombocytopenia and Major Bleeding Episode -- A Rare Presentation**

**Tanmay Dias<sup>1</sup>, Amitava Mazumdar<sup>2</sup>, Ujjal Chakraborty<sup>3</sup>**

*<sup>1</sup>2<sup>nd</sup> Year Medicine Resident, <sup>2</sup>Professor, <sup>3</sup>Associate Professor, Department of Medicine, RKMS VIMS*

**Introduction :**

Primary Sjogren's syndrome (pSS) is a chronic systemic autoimmune rheumatic disorder that is characterized by lymphoplasmacytic infiltration of the salivary and lacrimal glands. The prevalence of pSS is more common in women than men, with a sex ratio of 13:1. Occult pSS can rarely present as immune-mediated cytopenia. In this case report, we exemplify an atypical presentation of pSS that presented as thrombocytopenia and major bleeding disorder.

**Case Report :**

A 18 year-old boy presented to the casualty with a history of headache, photophobia and bleeding per rectum for one day. History of fever 5 days back and lasted for 3 days. On evaluation, the patient also gave a history of bleeding gums, non-pruritic erythematous rashes over both legs for three days. It was not associated with myalgia,

diarrhea, joint pain, and prior history of drug intake. His physical examination was remarkable with bleeding spots in the gums and purpuric rashes over both legs had tachycardia and hypotension and was severely pale. Systemic examination did not reveal any remarkable finding. Urgent blood report showed anemia with thrombocytopenia with platelet Count 4000/cmm and MRI Brain Showed Left sided Subdural hemorrhage. Urgent 12 units RDP given and patient stabilized first. ANA showed 1:320 titre with SSA/R0 Antibody positive. Bone Marrow Biopsy shows Immune thrombocytopenia (ITP). The diagnosis of primary Sjögren's syndrome was based on the presence of ocular dryness, salivary gland secretory and excretory dysfunction and positive anti-Sjögren's syndrome A Antibody. Schirmer's test was positive. Patient treated with Injection Methylprednisolone pulse therapy and IVIG

therapy and then continued on Oral Steroid. Patient improved drastically on follow up visit.

**Conclusion :**

The case just cited illustrates the association of

thrombocytopenia and pSS, which requires a strong clinical suspicion in the early diagnosis and treatment of the patient.

**Surgical Management of Both Bone Leg Simple or Compound Fracture ( GA Type 1) Managed with Plating Osteosynthesis With or Without Fixing Fibula with Favourable Clinical Outcome/Radiological Union**

**Md. Nouman Seikh**

*2<sup>nd</sup> Year Postgraduate Trainee, Department of Orthopedics  
(Under guidance of Prof. Dr Partha Pal, Department of Orthopaedics RKMSP VIMS)*

**Abstract:**

**Background :** Both bone leg fractures at same or different level with or without fixing fibula are challenging for absolute fixation along with maintaining leg length, rotational alignment and good functional outcome due to its hypervelocity mode of injury. Both bone leg fractures pose significant challenges to maintain its length, rotational alignment and stability. We present 36 cases of surgical intervention for both bone leg fractures at same or different level with or without fixing fibula and focus on the clinical outcome/radiological outcome.

**Case Presentation :** 36 cases with working age group presented with closed or open ( GA Type 1) both bone leg fracture at same or different level following road traffic accidents .

**Management and Outcome :** We go for Surgical exploration and thorough wash of the wounds as needed, following which we fixed

1. Only tibia for different level both bone fractures (n= 12 )
2. Both bone at same level fractures (n= 10 )
3. Only Tibia for both bone fractures at the same level . (n= 8 )

by minimally invasive plating osteosynthesis or open reduction internal fixation by plating . Postoperatively, the patient underwent comprehensive rehabilitation & exercises. After six weeks we allow patients for partial weight bearing walking, then after 8 weeks we allow full weight bearing walking with walking aid . At six months follow-up, the patient demonstrated progressive union in xray. But those cases having same level fractures where only tibia were fixed showed delayed union/non union .

**Conclusion :** Surgical fixation of both bone leg at same or different level fractures showing progressive union at 6 month follow-up with MIPO/ORIF techniques can yield favourable clinical / progressive radiological union outcomes:

1. Different level both bone fractures where only tibia is fixed
2. Same level fractures where both tibia and fibula are fixed.

**Delayed Union :** Same level fractures where only tibia was fixed showed delayed clinical improvement and radiological union.

## **The Mystery of Vanishing Kidney in An Adolescent**

**Moulik Pariya**

*1<sup>st</sup> Year Postgraduate Trainee, Department of Pediatrics*

**Introduction :** Mixed connective tissue disease (MCTD) is a rare autoimmune condition marked by overlapping clinical features of systemic lupus erythematosus, scleroderma, and polymyositis, often accompanied by the presence of high titers of anti-U1- ribonucleoprotein (RNP) antibodies. MCTD can affect multiple organ systems, leading to diverse manifestations.

**Objective :** To highlight the importance of early diagnosis, monitoring and multidisciplinary approach in case of MCTD.

**Case Summary :** Here, we present a case of MCTD complicated by grade 3 to 5 lupus nephritis with 2/24 activity, poly arthritis, compensated septic shock, AKI and right-sided lower limb deep venous thrombosis (DVT) in a 13 years old female child who presented with complaining of fever, joint pain for 1.5 years associated with weight loss and oral ulcer since 9 months. The patient exhibited severe renal involvement, with histopathological evidence of class III-V lupus nephritis with an activity index of 2/24, chronicity index of 2/12 and mild tubular atrophy with interstitial fibrosis (<5%). MRI KUB showed rudimentary right kidney and non visualization of right pelvicalyceal

system. Conservatively managed with Cyclophosphamide, methyl prednisone (pulse), prednisone tapering dose, hydroxychloroquine and antibiotics are given for raised Procalcitonin, CRP, fever and compensated shock. Concurrently, the patient developed DVT in the right lower limb on her 30th day of hospital stay, posing an additional thromboembolic risk. Initially, LMWH followed by Warfarin (as per the coagulation profile) after one week were started. On the next follow up after a month DVT was resolved completely. In short, the presence of nephritis, particularly in advanced grades, coupled with venous thromboembolism, highlights the complexity of managing MCTD.

**Method :** A detailed clinical examination and multidisciplinary diagnostic approach were employed including both pathological and radiological investigations.

**Result :** Patient's condition improved with medical management, currently in follow up.

**Conclusion :** This case underscores the importance of early diagnosis, vigilant monitoring and a multidisciplinary approach in the management of patients with MCTD to address both autoimmune and thrombotic complications.

## **Breast Lump in A Lactating Mother with Fever – A Diagnostic Dilemma**

**Shilpi Halder**

*2<sup>nd</sup> Year Postgraduate Trainee, Department of General Surgery*

**Introduction :** Breast Lump with fever in a lactating mother is a common infective entity but it may differ in some cases.

**Case Summary :** A 23 years old lactating mother admitted to our hospital with past h/o weakness

and severe anemia for 6 months. After repeated transfusion of 6 units of PRBC the Hb level was not raised above 7 gm%. The breast lump increased in size rapidly and later she quit breast feeding temporarily. Then she developed high

grade fever for 2 weeks. On local examination, it revealed a painless lump of approximately 8x7 cm in size almost engulfing the right breast without any skin changes or any axillary lymphadenopathy or any signs of inflammation or metastasis.

**On evaluation, all the causes of fever came out to be negative and tissue culture showed no growth.** On tru-cut, it comes out to be **Right sided Invasive Ductal Carcinoma (B5)** and under evaluation of anemia, Thalassemia Minor detected.

Patient underwent **Right sided Modified Radical Mastectomy** and in the post-operative period there was no fever and patient improved symptomatically and on 6 months follow up, no fever detected.

**Discussion : Fever with Breast Lump in a lactating mother is mostly due to infection. Here, the lump was painless with no signs of inflammation.** On work-up, it revealed Right Invasive Breast Cancer (BIRADS5) without any mets (cT3N0M0) and the symptoms improved drastically after removal of breast lump.

Probably, this may be a **Paraneoplastic Syndrome manifested as fever** and this retrograde diagnosis helped us to come out from this diagnostic Dilemma.

**Conclusion :** Paraneoplastic Syndrome is difficult to diagnose and in case of Breast Cancer, most of the case present with neurological syndrome, here, fever is a rare presentation.

**Keyword :** Breast Cancer, Fever, Anemia, Paraneoplastic Syndrome

### **A Rare & Aggressive Soft Tissue Lesion Causing Dilemma in Morphological Categorization Solved by Immunohistochemistry**

<sup>1</sup>Mayukh Kamal Sardar, <sup>2</sup>Pranamita Ray, <sup>3</sup>Soumit Dey

<sup>1</sup>1<sup>st</sup> Year Postgraduate Trainee, <sup>2</sup>Assoc. Professor, <sup>3</sup>Asst. Professor, Department of Pathology

**Introduction :** Epitheloid sarcoma is a rare malignant mesenchymal neoplasm. According to histology and site of origin it is divided into two types- classical & proximal type. Of the two the latter is rare, more aggressive, occurring in the middle aged and elderly subjects in deep soft tissue of trunk & hip region. In our case the patient presented with lower anterior abdominal wall lump. On imaging the lesion was in left anterior rectus sheath with lateral infiltrating margin. FNAC performed elsewhere suggested mesenchymal neoplasm without further categorization. It was excised & histopathological examination showed poorly differentiated neoplastic lesion. After applying a panel of IHC markers, epitheloid sarcoma- proximal type was established.

**Aims & Objective :** To establish the diagnosis of a poorly differentiated neoplastic lesion without any specific morphological diagnosis, solved by doing IHC.

**Methods :** Performing histopathological examination with subsequent IHC solving the mystery.

**Result :** Epitheloid sarcoma- proximal type

**Conclusion :** Excised lesion from left anterior rectus sheath initially diagnosed as a poorly differentiated neoplastic lesion on morphology. Subsequent IHC (Melan-A, CD 45, Pancytokeratin, CAM 5.2, INI-1) revealed the diagnosis to be epitheloid sarcoma- proximal type, a rare entity.