Aster HOSPITALS & CLINICS
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HealthNews DIGEST

OCTOBER 2024

Dr. Sherbaz Bichu

CEO & Specialist Anaesthetist
Aster Hospitals & Clinics, UAE

On behalf of Aster's leadership, I am delighted to congratulate you on the 26th edition of the HealthNews Newsletter. I commend your hard work, dedication, and commitment to keeping our community informed about the developments in healthcare.

Additionally, I want to remind you of a few crucial medical days in October. October is Breast Cancer Awareness Month, and we must continue to raise awareness about how important it is to check for and diagnose cancer early. In addition, October 16th is World Food Day, a celebration of the vital role that nutrition plays in advancing health and well-being.

As doctors, we are responsible for educating and informing our patients about these critical health issues, and I encourage all of you to participate in raising awareness and encouraging prevention actively.

Together, we are shaping the future of healthcare.

Dr. Ramanathan V

Medical Director
Aster Hospitals & Clinics, UAE

As the Medical Director for Aster Hospitals and Clinics, I am thrilled to extend a warm welcome to all our doctors as we embark on the journey through the 26th edition of HealthNews, continuing the tradition of exploring unique clinical cases and thought-provoking articles.

Taking on difficult and complex problems can be mentally and emotionally taxing. However, it is incredibly remarkable how dedicated our doctors are to finding solutions, navigating challenges with grace and unwavering resolve, providing comfort, and enhancing patient outcomes. Your contributions have undoubtedly positively impacted the lives of many.

I am particularly impressed by the quality of the articles and the depth of research that went into them. I implore everyone to participate and keep producing information that fosters medical innovation and quality.

Successful Diagnosis of a Perforated and Malpositioned Intrauterine Contraceptive Device (IUCD) at Aster Clinic, Al Nahda, B2B, Sharjah

Dr. Preetha Vinoj
Obstetrics and Gynaecology (Specialist)

PRESENTATION

- 35 year old married female
- Para 2, 1st Normal Vaginal Delivery (NVD) 6.7 years back, followed by Lower Segment Caesarean Section (LSCS) 1.2 years back
- Intrauterine Contraceptive Device (IUCD) was inserted elsewhere two months after LSCS
- No other medical/surgical history
- Presented with:
  - Complaints of moderate lower abdominal pain for 2 months
  - History of similar complaints on/off for more than a year
  - Taken multiple analgesics and antibiotics and treated at various centres for fever and abdominal pain with no improvement and relief. The patient came to Aster for further management.

FINDINGS

On examination:

- Afebrile - 36.5°C, No pallor
- PR - 62/mins ; BP - 118/60 mmHg
- P/A:
  - Tenderness in the lower abdomen - suprapubic and left iliac regions
- P/S:
  - Vulva, vagina and cervix - Healthy
  - Presence of mild vaginal discharge
  - Tail of IUCD protruding through the os
- P/V:
  - Uterus anteverted, normal in size with irregular margins, ?fibroids
  - Bilateral adnexal tenderness (moderate intensity) with severe posterior wall tenderness

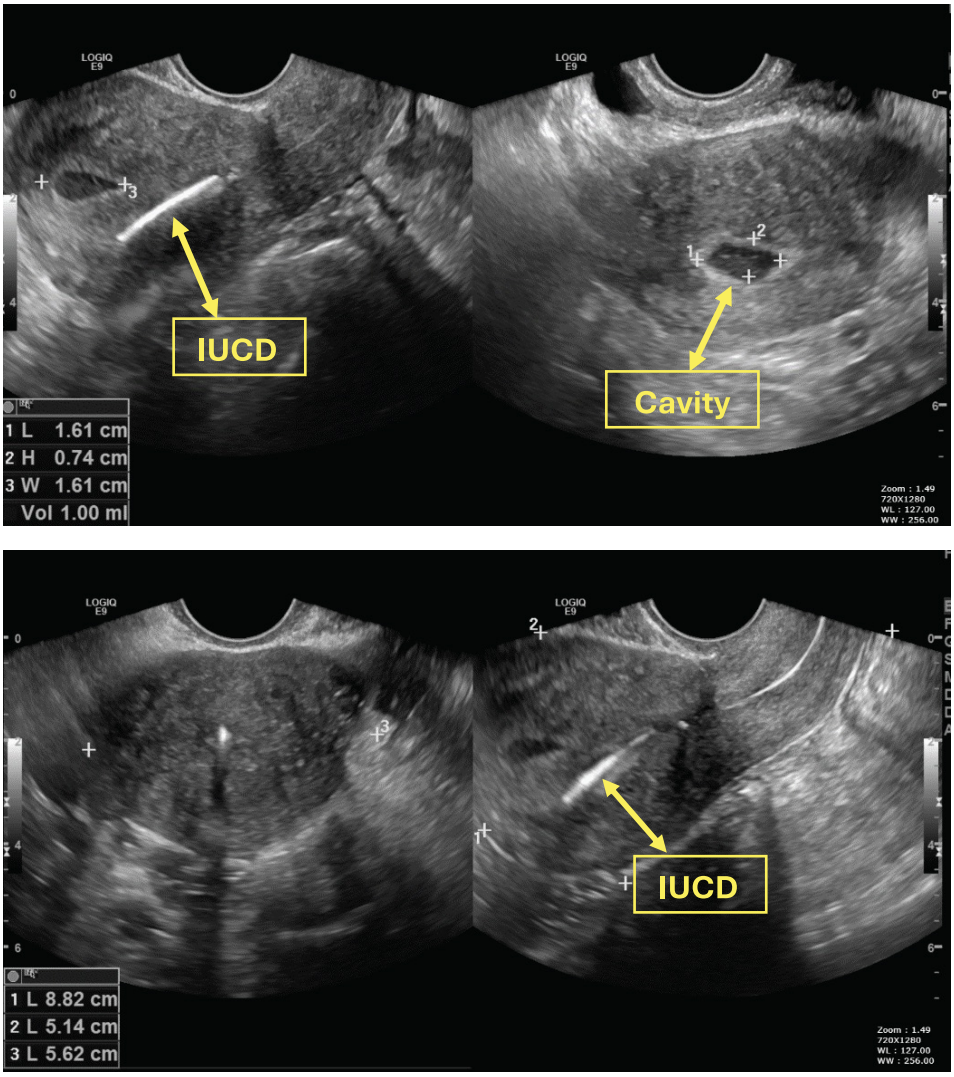
Ultrasound Sonography showed:

- Partially misplaced Intrauterine Contraceptive Device (IUCD) with the stem in the lower segment of the uterus and the arms penetrating through the myometrium on the posterior wall
- Endometrium was seen separate as a cavity

DIAGNOSIS

Radiology Ultrasound showed:

Uterus anteverted with 2 fibroids of <2 cm in size with IUCD - cranial 2/3rd piercing the uterine myometrium and caudal 1/3rd in the uterine cavity.



IUCD Perforation with Empty Cavity

Once the diagnosis was made, the patient was referred to Aster Hospital, Sharjah, for **Hysteroscopic Removal of IUCD.**

The patient underwent the procedure and was discharged uneventfully.

DISCUSSION

An Intrauterine Contraceptive Device is an effective form of birth control with less than 1% of failure rates. It is highly effective and long-acting and can reverse fertility at request from the next cycle onwards.

It can also be used safely in lactating mothers.

Malpositioned IUCD is where the IUCD is not present inside the fundus of the uterus, and its placement is eccentric. The different positions can be in the lower uterine segment or cervix or can perforate into the myometrium or to the pelvic cavity.

Malposition can be caused due to IUCD insertion by inexperienced hands or skills of the provider or due to congenital or acquired anomalies of the uterus.

Complications include:

- Infection
- Irregular bleeding
- Pelvic inflammatory disease
- Expulsion
- Cramps
- Pregnancy
- Perforation

CONCLUSION

A more and more painful intrauterine device, where it is not enough to see the wires to exclude malposition.

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A Comprehensive Overview of Parkinsonism - From Underlying Causes to Effective Treatment

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INTRODUCTION

Parkinsonism is a neurodegenerative clinical syndrome characterised by motor symptoms, including resting tremor, bradykinesia, rigidity, and gait imbalance (1,2). Additionally, this syndrome may present with non-motor symptoms such as constipation, loss of smell, sleep disorders, non-specific pain, anxiety, depression and dementia (1,2). Parkinsonism can result from neurological disorders distinct from Parkinson's disease, as well as from stroke, genetic diseases, metabolic disorders, or exposure to certain drugs and toxins (1,2).

The diagnostic approach to Parkinsonism involves evaluating neurological deficits associated with other disorders, such as neurodegenerative conditions, in conjunction with conducting a clinical examination, brain imaging, and the use of levodopa to exclude the possibility of Parkinson's disease (1,2). Management focuses primarily on symptomatic treatment and enhancing the quality of life (2). Anti-parkinsonian medications are the mainstay of symptomatic treatment, although their effectiveness may vary depending on the underlying etiology (2).

This article will provide a comparative discussion of Parkinson's disease and Parkinsonism, as well as an overview of the various Parkinsonian disorders and their management strategies.

WHAT IS THE DIFFERENCE BETWEEN PARKINSON'S AND PARKINSONISM?

Parkinson's disease is the leading cause of parkinsonism, though the two conditions are distinct from one another (3). In the figure below, you can find the key differences between Parkinson's disease and Parkinsonism (3).

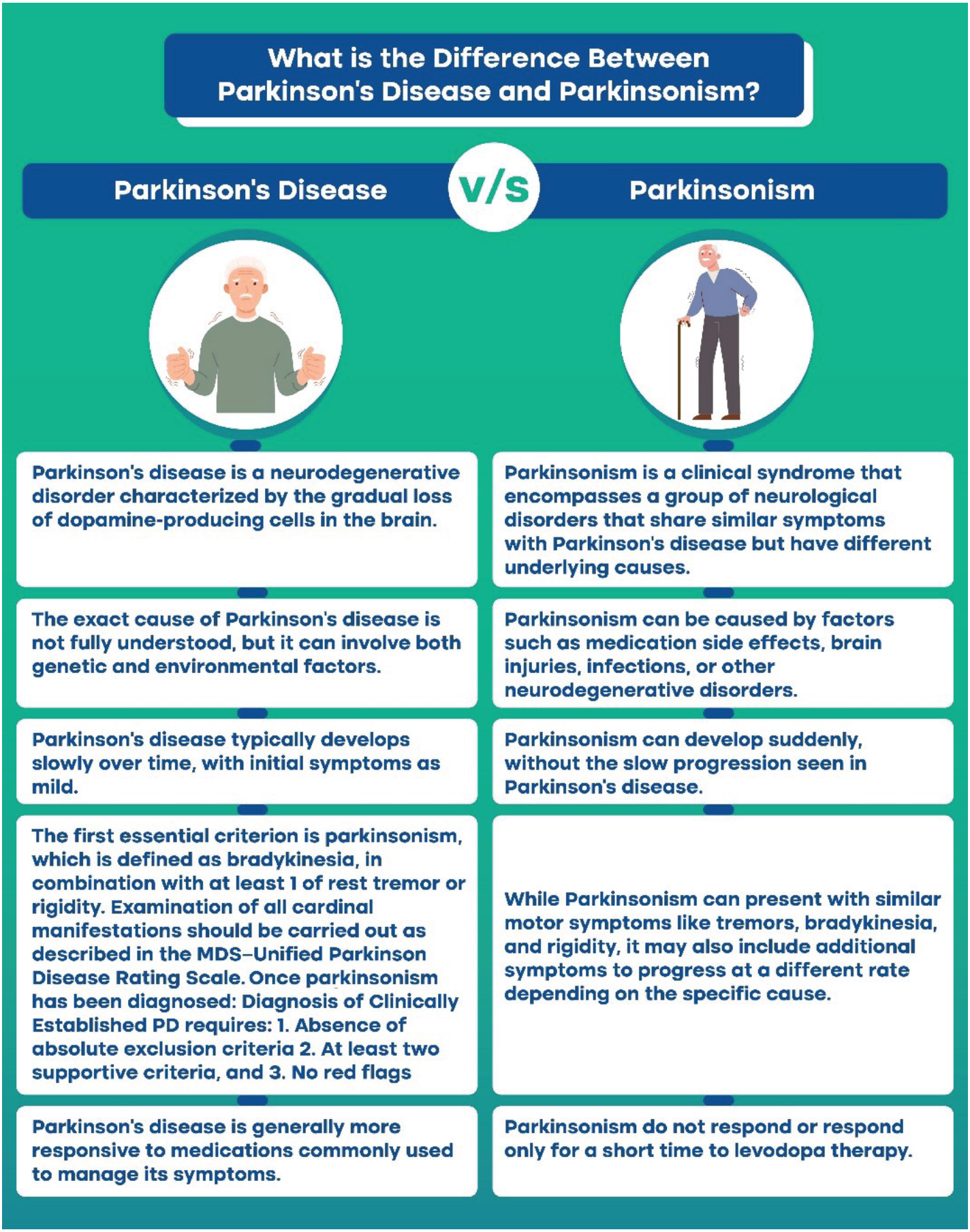


Figure 1: Difference Between Parkinson's Disease and Parkinsonism (4)

PARKINSONIAN DISORDERS AND ITS MANAGEMENT

Parkinsonism can be caused by Parkinson's disease itself as well as other underlying conditions (2). Some of the red flags in the diagnosis of PD include (4):

1. Rapid progression of gait impairment
2. Early bulbar dysfunction
3. A complete absence of progression of motor symptoms or signs over 5 or more years
4. Inspiratory respiratory dysfunction
5. Severe autonomic failure a) Orthostatic hypotension or b) Severe urinary retention or urinary incontinence
6. Recurrent (>1/years) falls because of impaired balance within 3 years of onset.
7. Disproportionate anterocollis (dystonic) or contractures of hand or feet
8. Absence of any of the common nonmotor features of disease despite 5-year disease duration.
9. Otherwise-unexplained pyramidal tract signs, defined as pyramidal weakness or clear pathologic hyperreflexia
10. Bilateral symmetric parkinsonism.

Other causes associated with Parkinsonism include:

- **Progressive Supranuclear Palsy (PSP)**

PSP is a rare adult-onset neurodegenerative disorder characterized by a range of symptoms, including postural instability, cognitive changes, dystonia, bradykinesia, ocular motor abnormalities, dysphagia, and speech disturbances (5,6). Frequent falls are another feature of PSP, with recurrent falls (more than once per year) due to impaired balance typically occurring within three years of disease onset. The progression of PSP typically begins with a presymptomatic stage, where individuals are asymptomatic but at high risk of developing PSP, which can only be detected post-mortem (7). This is followed by an early symptomatic stage, often referred to as "suggestive of PSP," which features signs that may not yet meet the criteria for a definitive diagnosis (7). As the disease progresses, patients may transition into distinct PSP subtypes, such as progressive supranuclear palsy-Richardson syndrome, progressive supranuclear palsy-parkinsonism, or mixed pathology, although specific subtype identification may not be possible at its early stages (7).

Management

Current pharmacological and non-pharmacological treatments for PSP provide only mild to moderate symptom relief (7).

Levodopa, combined with carbidopa, serves as the primary pharmacological intervention for dopaminergic replacement therapy in PSP, with the PSP-Parkinsonism subtype typically demonstrating a more pronounced response (8). While bradykinesia, rigidity, and tremor observed across various PSP phenotypes may show a similar level of improvement as in the PSP-Parkinsonism subtype, postural instability is less likely to respond favorably (8).

A retrospective study found that 32% of PSP patients experienced a >30% improvement in the Unified Parkinson's Disease Rating Scale, although 4% developed levodopa-induced dyskinesias (9). Amantadine has shown some promise, particularly in patients under 60, who may experience reduced rigidity, improved mobility, increased energy, and clearer speech (10). However, patients over 75 are more likely to encounter significant side effects (10). Additionally, patients with severe swallowing problems are recommended feeding tubes.

Botulinum toxin injections can also be an effective treatment for focal rigidity, focal dystonia, and associated pain in PSP (8). This approach can help with ease of dressing, muscle relaxation, and pain prevention (8). Non-pharmacological therapies like occupational therapy, physical therapy such as gait training, and neuromodulation may also play a role in managing PSP symptoms (8).

▪ Multiple System Atrophy (MSA)

MSA is a sporadic, rapidly progressing neurodegenerative disorder in adults, characterized by autonomic impairment, parkinsonism, and cerebellar ataxia (11). Autonomic dysfunction is often in the form of urinary urgency, frequency, or incomplete emptying, erectile dysfunction in males, or orthostatic blood pressure drop by at least 30 mmHg systolic or 15 mmHg diastolic within 3 min of standing (12).

Other features include inspiratory sighs, craniocervical dystonia induced or exacerbated by L-dopa severe speech impairment and dysphagia within 3 years of motor onset, erectile dysfunction, pathologic laughter or crying, jerky myoclonic postural or kinetic tremor, and postural deformities (12). Symptoms usually begin in the fifth decade and worsen over 5 to 10 years (11). Diagnosis is often delayed, with an average of 3.8 years from symptom onset to definitive diagnosis (11).

Management

Since no disease-modifying treatments for MSA have yet been approved, the primary goal of management is to address the patient's symptoms through a tailored, multidisciplinary approach (11).

Approximately one-third of patients with the Parkinsonian variant of MSA (MSA-P) show a beneficial response to levodopa therapy, although the improvement is typically transient, lasting a mean of 3.5 years according to one study (13). Nonetheless, levodopa remains a first-line pharmacological intervention, with a recommended therapeutic trial of up to 2 grams of total daily levodopa dosage for a minimum duration of 3 months (13).

Management of urinary and fecal incontinence includes therapies such as trospium chloride, vasopressin analogs, laxatives, or intermittent catheterization (14). Orthostatic hypotension is addressed through behavioral or lifestyle modifications, as well as midodrine, fludrocortisone, and droxidopa for short-term management of neurogenic orthostatic hypotension (15).

Non-pharmacological interventions, such as physical, occupational, and speech therapy, play a complementary and crucial role in managing mild to moderate MSA (15).

▪ Drug-Induced Parkinsonism (DIP)

DIP represents the most prevalent drug-induced movement disorder (16). Any pharmacological agent that disrupts dopamine neurotransmission, particularly those that block dopamine D2 receptors, can trigger Parkinsonian symptoms (16).

Parkinsonian symptoms can emerge within days of initiating the offending medication, with the majority of cases developing within the first 3 months of exposure (16). Additionally, a second peak in symptom onset has been reported at around 12 months of use, particularly with calcium channel blockers (16).

Management

Treatment for DIP typically involves reducing the dose, discontinuing the causative medication, or switching to an alternative medication (2). Parkinsonian symptoms can reverse within days to months after these changes (2). Anticholinergics like trihexyphenidyl and benztropine are commonly used to manage DIP, with benztropine effective at 4 mg per day for alleviating symptoms (16). However, these drugs should be used cautiously in elderly

patients due to potential central nervous system side effects such as confusion and delirium (16). Amantadine, including the extended-release formulation, is FDA-approved for DIP and may be a better option for elderly patients or those who cannot tolerate anticholinergics (16). In a double-blind, placebo-controlled study, amantadine at 100 mg twice daily was as effective as trihexyphenidyl at 4 mg twice daily, with fewer side effects (16).

- **Lewy Bodies with Dementia (LBD):**

LBD is a progressive neurodegenerative disorder characterised by a heterogeneous clinical presentation, which may include cognitive decline, cognitive and behavioural fluctuations, visual hallucinations, REM sleep behaviour disturbances, neuroleptic sensitivity, and Parkinsonism symptoms (17). The specific manifestations can vary significantly among affected individuals (17).

Management

The treatment of LBD focuses on managing cognitive, psychiatric, motor, and other non-motor symptoms (17). Cholinesterase inhibitors, including rivastigmine, galantamine, and donepezil, are the primary treatment for cognitive impairments and tend to be more effective in patients with LBD (18). These medications may also improve visual hallucinations and delusions associated with the disease (17). For some patients, low-dose levodopa preparations may effectively reduce motor impairment without exacerbating psychiatric symptoms (19).

Atypical antipsychotics, such as pimavanserin, clozapine, quetiapine, and aripiprazole, are used to manage distressing hallucinations in individuals unresponsive to cholinesterase inhibitors, though they must be prescribed carefully due to the risk of neuroleptic sensitivity (17). Clonazepam or melatonin may be prescribed for REM sleep behaviour disorder, while selective serotonin reuptake inhibitors (SSRIs) are widely used to treat depression in LBD patients (17). Additionally, physiotherapy, occupational therapy, and speech therapy can enhance the overall quality of life (QoL) for patients with LBD (17).

- **Vascular Parkinsonism (VP):**

VP is characterised by the presence of parkinsonian symptoms, clear evidence of cerebrovascular disease, and a distinct link between the two (20). The primary clinical presentation typically involves lower-body parkinsonism, with symptoms such as impaired gait, unstable posture, poor response to levodopa, difficulty maintaining balance, and frequent freezing episodes (20).

Management

Symptomatic management and control of vascular risk factors.

- **Corticobasal Degeneration (CBD):**

CBD is a neurodegenerative disorder characterised by the progressive accumulation of pathological tau protein in neurons and glial cells (21). The clinical manifestations of CBD are highly variable, often leading to misdiagnosis as Alzheimer's disease or Parkinson's disease (21). The classical presentation features asymmetric parkinsonism along with cortical signs such as apraxia (difficulty in executing learnt motor tasks), cortical sensory deficits, and alien limb syndrome (21). However, CBD can present with a diverse range of clinical phenotypes, including frontal-behavioral syndrome with spatial disturbances, progressive aphasia, progressive supranuclear palsy-like syndrome, and a predominantly cognitive phenotype that is frequently mistaken for Alzheimer's disease (21).

Management

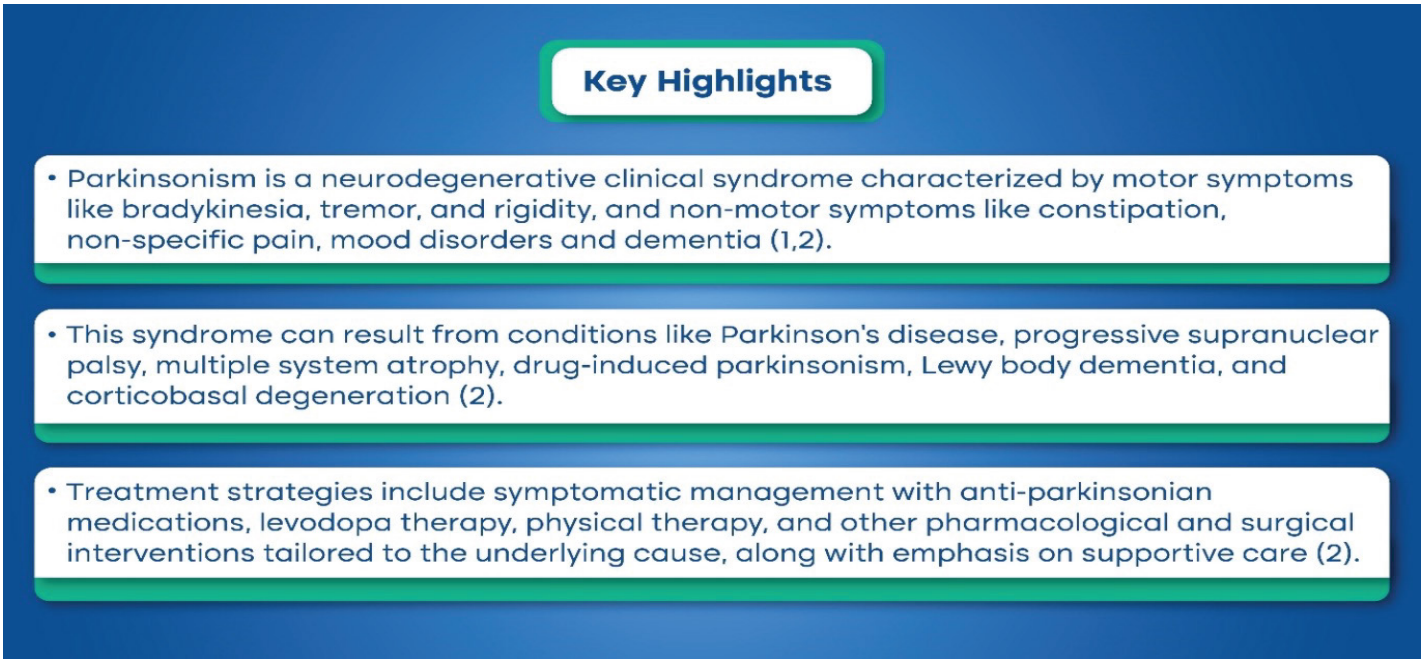
Therapeutic agents for managing Parkinson's disease symptoms are used to address motor symptoms in CBD (21). While Moretti et al. found that the transdermal dopamine agonist rotigotine is effective for atypical parkinsonism, they did not specify its efficacy for different parkinsonism subtypes or compare it to other

dopaminergic agonists (22). Dopaminergic agents carry a high risk of psychotic and psychiatric complications. In contrast, benzodiazepines like clonazepam can improve myoclonus and dystonia and are considered more favorable (21). Additionally, acetylcholinesterase inhibitors and memantine, have been used off-label for cognitive and behavioral symptoms in tauopathies, though results have been inconsistent (21).

- **Other Causes**

There are other rare degenerative brain and genetic conditions that can cause Parkinsonism (2). These include (2):

- Normal pressure hydrocephalus
- Wilson's disease
- Neurodegeneration with brain iron accumulation



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Successful Management of Crushed Degloving Extensive Injury of Right Hand at Aster Hospital, Mankhool

Dr. Suhas Sateesh
Plastic, Aesthetic & Reconstructive Surgery (Consultant)

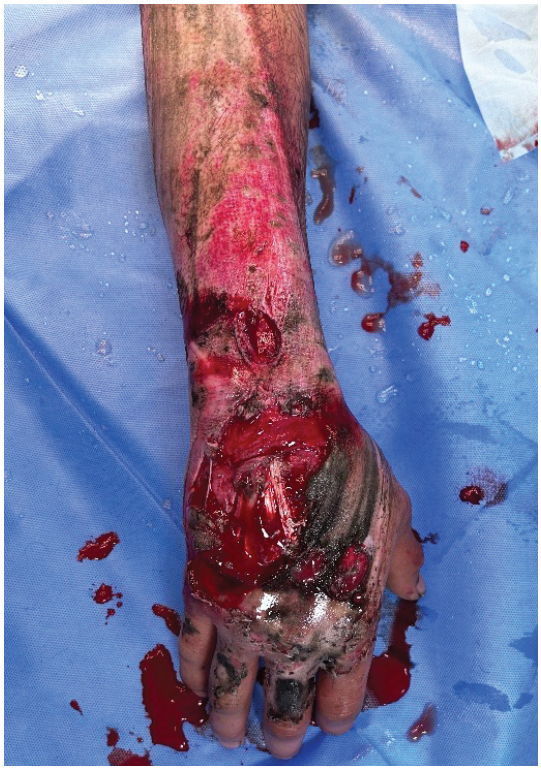
PRESENTATION

- 25 year old male
- No past history of medical illness
- Admitted with complaints of:
  - Right hand crush injury in the workplace
  - Wound over right hand and forearm with extensive skin loss, tendon injuries and muscle exposure
  - Crush-Avulsion injury in cement conveyor belt, extending from fingers to elbow

FINDINGS

During Examination:

- Degloving of wrist and hand area, extensive deep abrasion injury from the finger level to elbow level - extensor tendons crushed
- Severe contamination and multiple foreign bodies in the wound area
- Extensive skin degloving mainly in the dorsal wrist and dorsum of the hand
- Multiple Extensor tendon injury spanning zones 5, 6, 7, 8



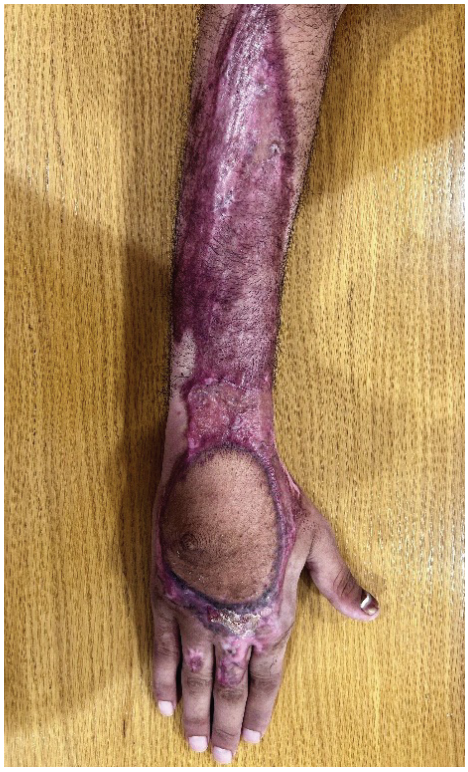
Pre-operative image

PROCEDURE

- During the surgery, the injured hand and the donor site of the flap were painted and draped.
- Extensive Debridement was done under tourniquet control and loupe magnification, wherein all the foreign bodies, nonviable tissue, skin and muscle were excised sharply.
- The patient underwent Extensor Tendon Repair by end-to-end four-strand repair and epitenon sutures.
- Flap was planned in reverse and marked.
- Thinned Fasciocutaneous Groin Flap was raised, and an inset was given to cover the defect completely.
- Doubtfully viable areas were resurfaced with artificial skin substitutes.
- After 3 weeks, the second stage surgery was performed, where flap division and split skin grafting were done for the non-healed areas.

POST PROCEDURE

The post-operative period was uneventful. The patient was in stable condition at the time of discharge. He was on regular follow-ups for the dressings, and the flap and skin grafts healed and settled well.



DISCUSSION

In a mutilated hand, achieving the preinjury state, though a good goal to set, is rarely achievable. Nevertheless, achieving a hand with preinjury function is a worthy goal.

According to Piñal, an acceptable hand is one with a thumb and at least three fingers of the correct length, with motion preserved at the proximal interphalangeal joints, stable wrist, or at least two opposing, sensate and painless digits. For motion, one digit can be stable with the other being sufficiently mobile to meet it. The joints of the mobile finger have to be stable to provide good pinch strength. Multiple surgeries are usually necessary for staged correction of the issues.

In crush injuries, all the hand components need to be reconstructed, i.e. bones, tendons/muscles, blood vessels, nerves and a stable skin cover. In this case, extensor tendon injury and extensive skin loss were the major issues. If end-to-end repair is not possible due to tendon loss, a tendon graft is usually used to bridge the gap, provided a stable skin cover can be given simultaneously.

The groin flap is one of the workhorse flaps in hand reconstruction after major trauma with extensive tissue defects. It is an axial pattern Fasciocutaneous flap based on Superficial Circumflex Iliac Artery, which is a branch originating from the Femoral Artery.

The flap provides a large amount of vascularised skin cover, and the donor site scar is hidden beneath the underwear line, making the donor scar also cosmetically acceptable.

There are other flaps which are used in Hand Reconstruction, depending on the amount of skin needed, site of the hand defect and availability of the donor site - like Shaw Hypogastric Flap, Paraumbilical Flaps, Radial Artery Forearm Flap, Posterior Interosseous Artery Flap, Anterolateral Thigh Flap and Gracilis Flap.

Once a patient has recovered from the surgery, physiotherapy is an important and integral part of the post-operative protocol to reestablish and retrain the hand by mobilisation exercises, strengthening exercises, gross and fine skills training and, in severe injuries, vocational training as well. Thus, each type of hand injury needs a specific surgical and rehabilitation plan, and the prognosis also varies depending on the severity of the injury.

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An Overview of Scrotal Varicocele

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INTRODUCTION

Varicocele is the abnormal dilation or tortuosity of veins in the pampiniform plexus of scrotum (1). It affects between 4.4% and 22.6% of the male population and is present in 21-40% of men suffering from primary infertility and 75-81% of men with secondary infertility (2). While most cases of varicocele are asymptomatic, some individuals may experience pain (1). The underlying cause of varicocele is believed to have multiple factors (3). Diagnosis can be done through physical examination, ultrasound imaging, and hormonal assay (4). Treatment options for varicocele include conservative treatment, or procedures like varicocelectomy, sclerotherapy, and embolization depending on the grades of varicocele (4). This article briefly discusses the diagnosis and treatment options available for scrotal varicocele.

1. WHAT IS SCROTAL VARICOCELE?

Varicocele is a condition that involves swelling and enlargement of veins in the scrotum (1). This enlargement is frequently found on the left side, but around 50% of men experience bilateral varicoceles (1). Varicocele is the most common cause of male fertility, it affects 21-41% of men suffering from primary infertility and 75-81% of men with secondary infertility (2). Varicocele causes reduced blood flow and increases testicular temperature, which decreases sperm production, or the sperm produced is not healthy (5). This results in infertility and pain due to swelling (5).

The underlying causes are believed to be multifactorial, with the main factors being anatomical differences in venous drainage between the left and right internal spermatic veins (leading to more left-sided cases) and venous valve failure, which causes reflux of venous blood and increased hydrostatic pressure (1). Physical exertion during puberty may trigger varicocele development, while physical activities later on in life can worsen symptoms without affecting their prevalence (1).

2. GRADES OF SCROTAL VARICOCELE:

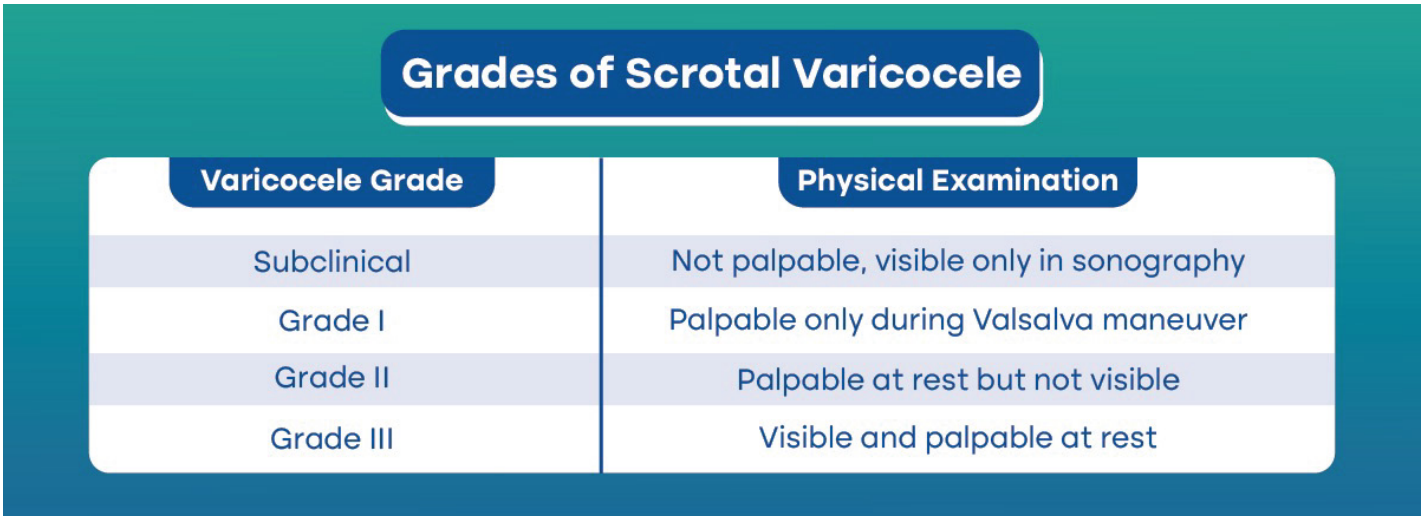

Table 1: Grades of Scrotal Varicocele as per WHO (2)

3. DIAGNOSIS AND EVALUATION:

1. Physical Examination:

Physical examination is considered to be the gold standard for diagnosing a varicocele (5). It includes palpation and observation of the scrotum at rest and during Valsalva maneuver (6). The scrotal examination, palpation should be performed with the patient in standing and supine position, with and without a Valsalva maneuver, in a warm room to help the cremaster and dartos muscle fibres relax (7,8). Varicoceles are typically classified according to different grades based on their severity (7). The grading scale commonly used to determine the severity and is mentioned in Table 1 above.

2. Doppler Ultrasound:

Pelvic doppler ultrasound is a reliable and consistent method for the evaluation of testicular pain in varicocele (8). The diagnosis of varicocele, especially in pediatric patients, can be accurately done by using ultrasonography with doppler ultrasound (3). This technique is cost-effective and non-invasive and is an important tool for diagnosis (7). This examination is also be performed in a warm room in a supine position, using preheated ultrasound gel, and ensuring patient privacy (6). For detecting subclinical varicoceles, ancillary diagnostic methods such as scrotal ultrasonography, thermography, doppler examination, radionuclide scanning, and spermatic venography can be used only when there is no palpable abnormality (4). Doppler ultrasound is useful and recommended in cases where the scrotum is small, the patient is overweight, or there is a history of previous scrotal surgery (8).

3. Hormonal Assay:

Patients with varicoceles should undergo an endocrine evaluation when there is abnormal serum analysis or other signs of hormonal imbalance (8). As part of the evaluation of varicocele, it is important to perform hormone laboratory testing on the patient to characterise any degree of androgen deficiency and to screen other potential endocrine causes of infertility (2). Some healthcare providers suggest routine testosterone testing in all patients with palpable varicoceles because these varicoceles are linked with lower testosterone levels in subfertile men and that microsurgical repair of varicocele can lead to a significant increase in testosterone level (8).

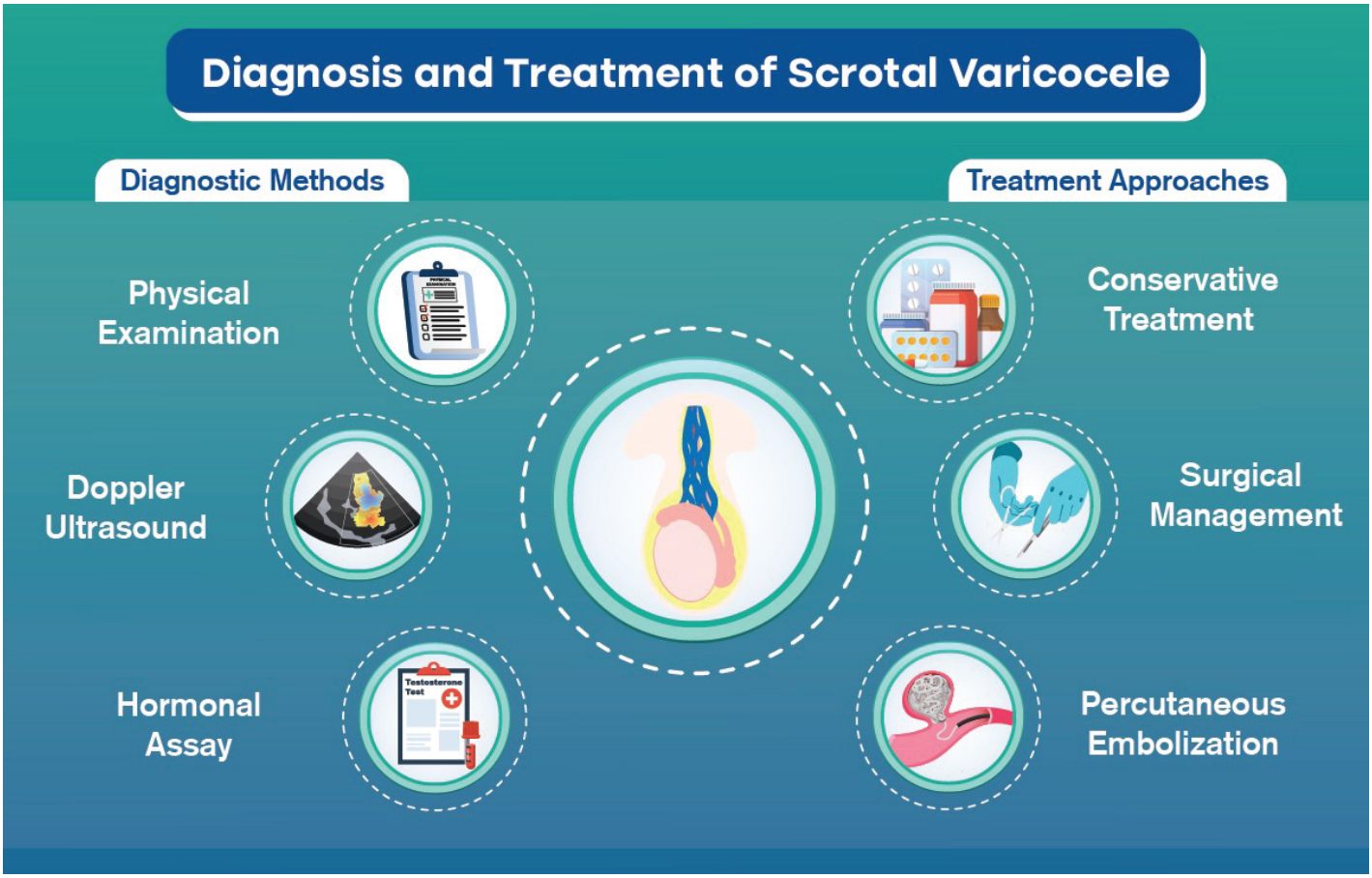

Figure 1: Diagnosis and Treatment of Scrotal Varicocele

4. TREATMENT OF VARICOCELE:

1. CONSERVATIVE TREATMENT:

The management of symptomatic varicocele begins with conservative treatment and period of observation (5,7). Non-steroidal anti-inflammatory drugs (NSAIDs), limiting physical activity, and providing scrotal support can relieve pain in many patients (5,7). In addition to these conservative measures and alternative management approaches, a period of several months of observation will allow other potential sources of pain to resolve (5).

2. SURGICAL MANAGEMENT:

Surgical management is performed to prevent retrograde blood flow within the internal spermatic veins (4). The surgical treatment consists of either percutaneous selective embolization, sclerotherapy, or surgical correction, which is commonly known as varicocelectomy (4).

▪ INDICATIONS FOR SURGICAL TREATMENT:

According to the recommendations from the American Urological Association (AUA) and the American Society for Reproductive Medicine (ASRM), varicocele treatment should be considered in specific clinical conditions (4,9).

For couples attempting to conceive, treatment is recommended when (4,9):

1. A varicocele is palpable.

2. There is documented infertility in the couple.
3. The female partner has normal fertility or treatable infertility.
4. The male partner shows abnormal semen parameters or sperm function test results.

For adult men with palpable varicoceles and abnormal semen analysis, varicocele repair is advised even if they are not actively trying to conceive (8). Young men with palpable varicoceles and normal semen analysis should undergo regular monitoring of semen analysis every one to two years (8).

In adolescents, varicocele repair is recommended when there is evidence of testicular atrophy on the affected side (4). If testicular size is normal, adolescents should undergo regular follow-ups with annual testicular measurements and/or semen analyses (4).

a. Microsurgical Subinguinal Varicocelectomy:

The microsurgical subinguinal varicocele repair is the preferred method for varicocele due to its minimal post-operative pain and low complication risk (5). It is associated with a lower recurrence rate because it allows for ligation of the cremasteric veins (5). Since the testicular arteries are situated near the veins in this region, there is a higher risk of arterial injury, which can be minimised by using a microvascular doppler ultrasound and operating microscope (5).

b. Inguinal Varicocelectomy:

This surgery involves a 3 to 4 cm incision in the lower inguinal canal (9). The procedure includes ligating superficial veins, incising the external oblique muscle, and carefully retracting the ilioinguinal nerve to avoid damage (9). The spermatic cord is isolated and veins are ligated while preserving the vas deferens, testicular artery, and lymphatics (9). The incision is closed using absorbable sutures (9).

c. Laparoscopic Varicocelectomy:

Laparoscopic varicocelectomy involves high ligation of the spermatic veins while preserving the testicular artery and some lymphatics (8). Despite these advantages, it is less frequently performed due to the need for general anesthesia, the requirement for an experienced surgeon, its invasiveness, and a higher complication rate (8).

d. Percutaneous Embolization:

Percutaneous transcatheter embolization is a minimally invasive procedure that involves accessing the veins through a catheter, followed by using a venogram to map the venous anatomy, and then embolizing the veins with coils, balloons, or sclerotherapy (7). One major advantage is that it can be done under local anesthesia (7). However, it requires specialised expertise and involves significant radiation exposure (7). Although less successful than surgical methods for primary treatment, it is more established for recurrent or persistent varicocele (7).

▪ COMPLICATIONS OF VARICOCELE REPAIR:

The most significant complications associated with varicocele repair are recurrent or persistent varicocele, hydrocele formation, and injury to the testicular artery (5). The incidence of these mentioned complications vary depending on the surgical approach used (5).

Key Highlights

- Varicocele is characterized by the abnormal enlargement or twisting of veins within the pampiniform plexus of the scrotum and affects approximately 4.4% to 22.6% of the male population (2).
- The cause of scrotal varicocele is multifactorial but physical exertion during puberty can lead to varicocele, which can worsen with physical exertion at later age (1). While often asymptomatic, some individuals may experience pain (1).
- Diagnosis of varicocele involves physical examination as the gold standard and doppler ultrasound in cases where the varicoceles are small and difficult to palpate (7).
- Treatment involves conservative management to reduce pain and surgical options like open varicocelectomy, embolization, and laparoscopic varicocelectomy for patients who wish to conceive (4).

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Early Diagnosis and Successful Treatment of Acute Impending Compartment Syndrome of Forearm at Aster Cedars Hospital and Clinic, Jebel Ali

Dr. Hardikkumar S Pawar
Orthopaedics (Specialist)

PRESENTATION

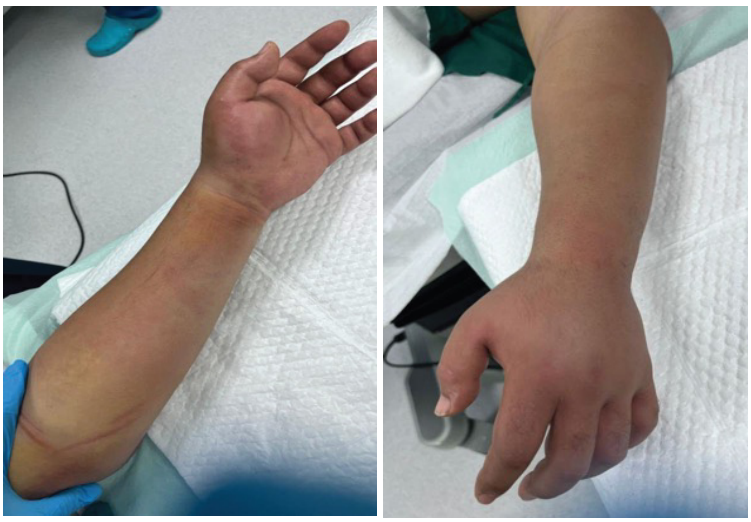
- 26 year old male
- History of electric shock while charging the phone, fell on the ground due to shock with sustained injury to the left upper limb, wrist and forearm. The patient underwent an X-ray examination that came normal, but the pain was severe; hence, he was given a temporary splint for the forearm and medications.
- Presented in the Emergency department after two days with complaints of:
  - Severe pain and swelling in left upper limb
  - Rise in local temperature of left forearm
  - Swelling and parenthesis over left upper limb (mainly forearm and hand)
  - Tightness around the bandage, which was removed immediately to give limb elevation and ice application, and regular distal pulses of the radial artery were seen.

FINDINGS

The patient was admitted for observation in the emergency ward:

- The pain and swelling did not subside for the next 6 hours and increased to severe intensity, pain on passive stretching and paresthesia.
- No active movements of the finger and wrist

The patient was advised for an Emergency Fasciotomy.



Pre-op Images

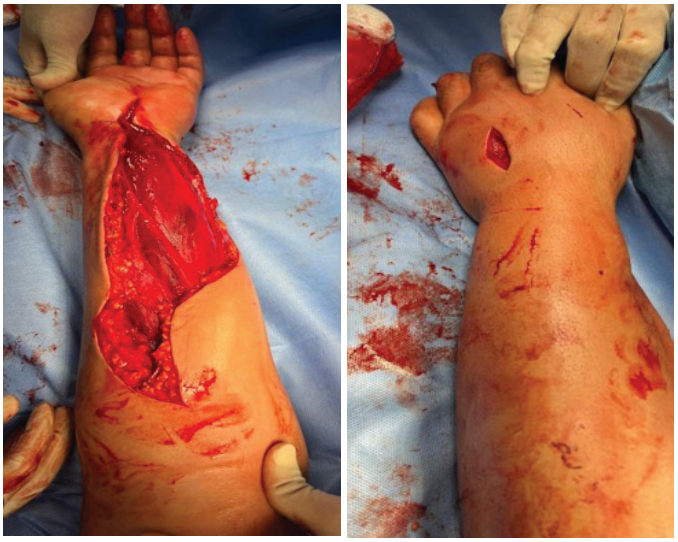
DURING PROCEDURE

The procedure steps were divided into two stages:

- **Stage 1-** Fasciotomy compartment release for forearm and hand
- **Stage 2-** Closure of fasciotomy, skin grafting, or flap coverage once oedema is subsided

Stage 1:

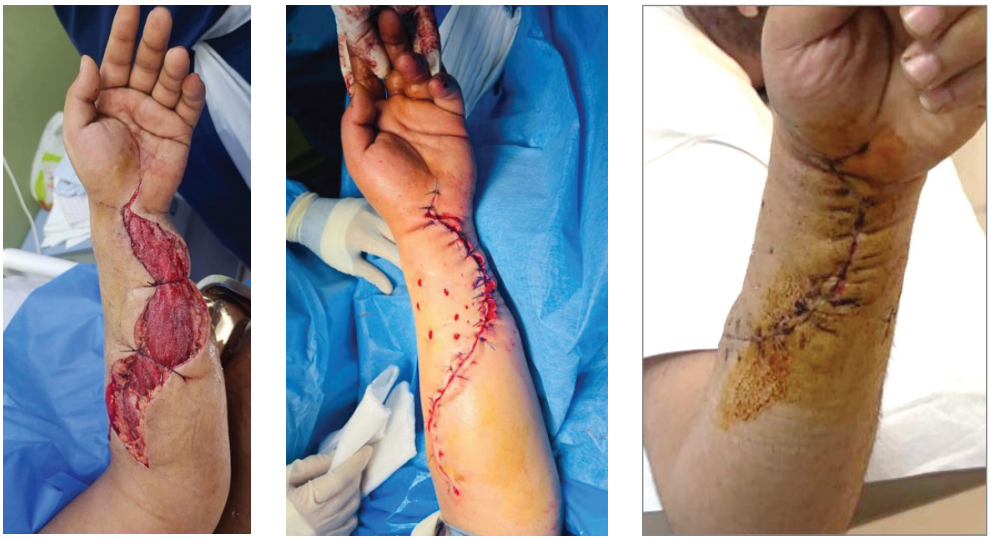
- A full-length forearm lazy S-shaped fasciotomy was performed along the forearm's volar aspect without dividing the left hand's flexor reticulum.
- An incision was made 1 cm distal to the wrist crease to release the hand compartment.
- There was no presence of muscle necrosis or lysis.
- The hand dorsum compartment was released with a separate incision, and all hematoma was drained.
- Fasciotomy released the fascia of the superficial layer, the deep layer that contains the pronator quadratus, and the deep flexor compartment.
- The dorsal compartment and the mobile extensor were released without a dorsal incision.
- The wound was washed, and stay sutures were applied along with sterile betadine gauze dressing.



Intra-op Images

Post-procedure, the patient was given strict limb elevation and encouraged to exercise actively. The patient developed no neurovascular deficit or swelling during the post-op period, and his pain was reduced significantly. The patient was discharged after 24 hours in stable condition and was reviewed as an outpatient for dressing after 4 days.

On post-op day 9, the patient underwent a Fasciotomy Closure Procedure (Stage 2).

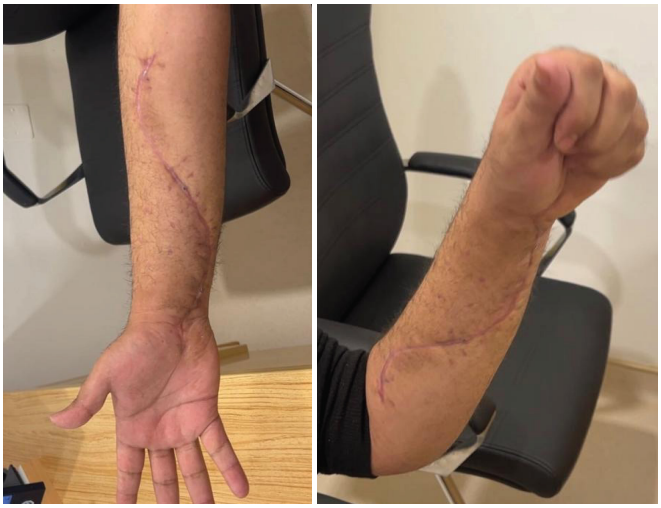


Post-op Closure Images

POST PROCEDURE

The patient tolerated the procedure well. He was on regular follow-up for one month in the outpatient department. His surgery wound healed without any complications. He underwent five sessions of physio rehabilitation.

At 8 weeks, the patient recovered fully with a good range of movements, well-healed scars and a fully functional hand.



Follow-up images showing a good range of movements, full flexion and well-healed scars

DISCUSSION

Compartment Syndrome occurs most commonly secondary to a high-energy limb injury. Yet, trivial injuries can also lead to a compartment. Crushing injuries are among the most common causes of compartment syndrome. Young men have the highest incidence, which could be due to their larger muscle mass within fascial compartments (7).

Multiple causes, including various types of trauma, prolonged compression, muscle avulsions, burns, snake bites, electrical shock, high-pressure injection injuries, exercise, infection, bleeding, and intravenous drug infiltration, have been reported to lead to the development of a compartment syndrome in the upper extremity (6).

In this article, the causes of upper limb compartment syndrome are tight bandages and electrical shock from charging cables, which are very rare but evident.

Classically, five P's are associated with compartment syndrome: Pain, Paresthesia, Pallor, Paralysis, and Pulselessness. Sometimes, a sixth P for Poikilothermia is added (2,7).

The earliest symptoms are pain out of proportion and pain with passive stretching of the muscles. Pulselessness is rare and only occurs after arterial injury. Matsen et al. described a consistent progression of neurological dysfunction associated with compartment syndrome (8). Compartment syndrome must be suspected with tense, swollen compartments and a history of injury.

Compartment pressure is usually measured when the diagnosis is unclear; hence, pressure measurement can prevent unnecessary fasciotomy. However, when the clinical presentation is evident, there is usually no benefit from measuring pressures, and immediate fasciotomy can be undertaken.

The main goal in treating Acute Compartment Syndrome is a decompressive fasciotomy of all affected muscle compartments, nerves, and vessels (7).

Post-fasciotomy, wounds are usually left open, and a second operation for delayed primary wound closure can be done in 7-10 days (6,7).

CONCLUSION

Forearm Compartment Syndrome is rare but should be recognized as soon as possible, as any delay in diagnosis and treatment can result in the permanent loss of a functional limb. There are multiple causes of upper arm compartment syndrome; most commonly described in the literature are crushing injuries, fractures, and tourniquets at the upper arm.

Other rare causes are electrical shock, blunt trauma, prolonged compression of tight bandages or splints, muscle avulsions, burns, snake bites, high-pressure injection injuries, exercise, infection, bleeding, and intravenous drug infiltration.

Any patient with severe swelling or pain out of proportion, with or without any neurovascular deficits, should be vigilantly evaluated for impending compartment syndrome.

When in doubt, there are various methods to measure compartment pressure. There are multiple surgical methods to release an upper arm and forearm compartments.

Fasciotomy should be done with a full-length incision to release all flexor and extensor compartments of the forearm, and the hand compartment should be addressed with a separate incision.

Delayed primary closure of fasciotomy has a good outcome with early functional rehabilitation and close monitoring of the wounds.

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