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HealthNews DIGEST

NOVEMBER 2024

Dr. Sherbaz Bichu

CEO & Specialist Anaesthetist
Aster Hospitals & Clinics, UAE

On behalf of Aster's leadership, I am delighted to welcome you to the 27th edition of the HealthNews Digest. This program has become an essential forum reflecting our unwavering dedication to clinical excellence and knowledge sharing. The dedication and contributions of our esteemed medical professionals have made this newsletter an invaluable resource.

I sincerely thank everyone who has been a part of this journey. Your ongoing support and expertise have been instrumental in making this initiative successful. We are confident that our exceptional teams of Aster doctors, working alongside our external clinical partners, will continue to drive this forward. We are committed to maintaining clinical excellence and providing the best possible patient care through ongoing knowledge-sharing and collaboration.

Dr. Ramanathan V

Medical Director
Aster Hospitals & Clinics, UAE

As the Medical Director for Aster Hospitals and Clinics, I am delighted to see this program, based on the core idea of exchanging clinical best practices, completing its 27th edition and pushing the boundaries with each new edition. I want to express my sincere gratitude to everyone who has worked so hard to make this newsletter a vital component of the Aster ecosystem.

With its diverse blend of compelling cases and thought-provoking articles, this newsletter has consistently provided our community of doctors and allied professionals with innovative ideas for collaborative ventures in clinical best practices. I implore each of you to keep up the incredible momentum in the field of medical knowledge and to contribute even more to the upcoming HealthNews Digest editions. Your steadfast dedication to this project is crucial to expanding the boundaries of healthcare quality and knowledge.

Dr. Sandeep Janardan Tandel
General & Laparoscopic Surgery (Specialist)

Dr. Kranti Lohokare Jadhav
Obstetrics-Gynaecology & Laparoscopic Surgery (Specialist)

Dr. Prasanth S Nair
Urology (Specialist)

Innovative Multidisciplinary Approach Resolves Complex Case of Persistent Fibroids at Aster Hospital, Sharjah

PRESENTATION

- 43 year old female
- P1L1 patient with NVD 16 years back
- Surgical history of Open Myomectomy for uterine fibroids and had persistent urinary complaints
- Medical history of Hypertension for two months (on medications) and childhood Asthma
- Admitted with complaints of:
  - Persistent lower abdominal and pelvic discomfort
  - Intense menstrual pain
  - Irregular and frequent menstruation
- Referred to Aster as a case of Multiple Myomas

FINDINGS

During examination:

- Afebrile, conscious, and oriented
- Pulse rate – 100/min
- BP – 124/91 mmHg
- Enlarged uterus comparable to that of a 16-week pregnancy
- Nil vaginal loss

MRI showed:

- Presence of multiple myomas and hydronephrosis (fluid build-up) in the right kidney
- A stricture or narrowing of the ureter at the ureter-bladder junction

DURING PROCEDURE

After obtaining informed consent, the patient underwent Laparoscopic Myomectomy with left side ovarian cyst drainage and salpingectomy along with ureteric stenting on the right side under general anaesthesia:

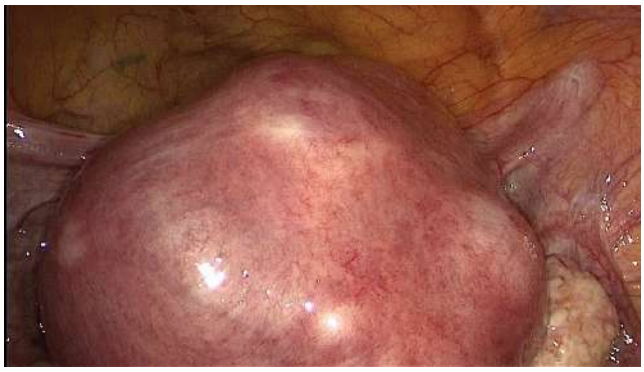
Urology Management:

- Patient was placed in a dorsal lithotomy position, and parts were painted and draped in the usual sterile manner.
- Cystourethroscopy was performed using a 20-French scope.
- Meatus in the urinary bladder was found normal, with no trabeculations or mass/calculi/ growth, and with normal right and left ureteric orifice.
- Ureteric lumen was compressed 5 cm above the Vesico-ureteric Junction (VUJ) externally, the guidewire was negotiated and followed with the ureteroscope, and no intraluminal mass calculi were noted.
- Tortuous ureter.
- DJ stent was inserted at 26 cm 5 fr over the guidewire after doing Retrograde Pyelography (RGP) in the lower ureter.
- Stent position confirmed under C-arm.
- Haemostasis was achieved.

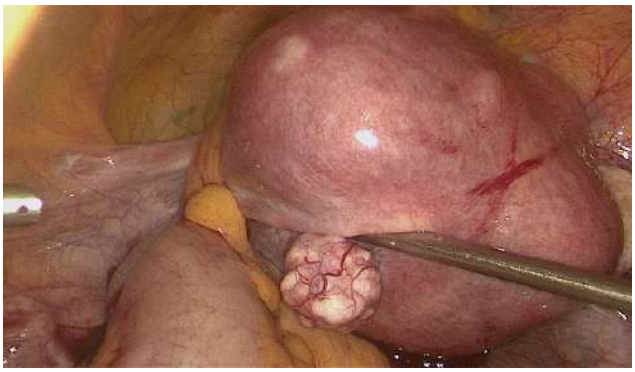
Obstetrics and Gynaecology Management:

- Laparoscopic Myomectomy was performed under general anaesthesia.
- Patient was placed in a low-lithotomy position, and parts were painted and draped in the usual sterile manner.
- Pneumoperitoneum was achieved with a Verres needle in Palmer's point.
- The main port was inserted at the supraumbilical port using the Optiview method.
- Two 5 mm ports were inserted on the left side, one 5 mm on the right side, and a suprapubic catheter.
- Two large fibroids of 4x5 cm and 3x3 cm were seen on the anterior wall.
- Multiple fibroids, with the largest being 4x4 cm and submucosal seen on the post wall, making a total of 11 fibroids.
- Multiple myomectomies were done after injecting vasopressin, and all the sites of myoma bed were sutured with Vicryl and v-lock sutures.
- Myomas were removed with a morcellator.
- Hydrosalpinx was seen on the left side, and salpingectomy was done.
- Ovarian cyst on the left was simple drained along with 3x3 cm endometrioma.
- Haemostasis was checked and attained.
- Mop and instrument counts were taken, suction irrigation was done, and drain was kept in the pod.

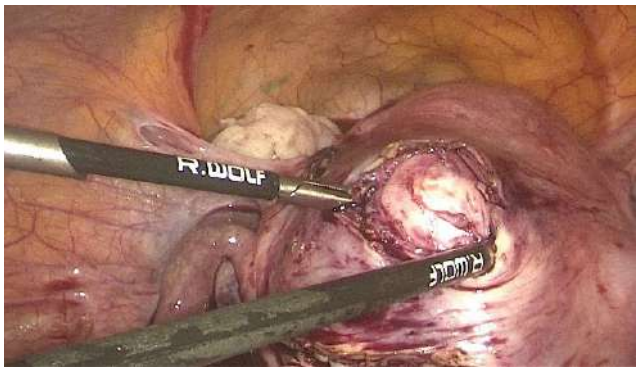
A total of 11 fibroids were identified, ranging from superficial to deeply embedded within the uterine muscle. The largest fibroid was about the size of a tennis ball (4x4 cm).



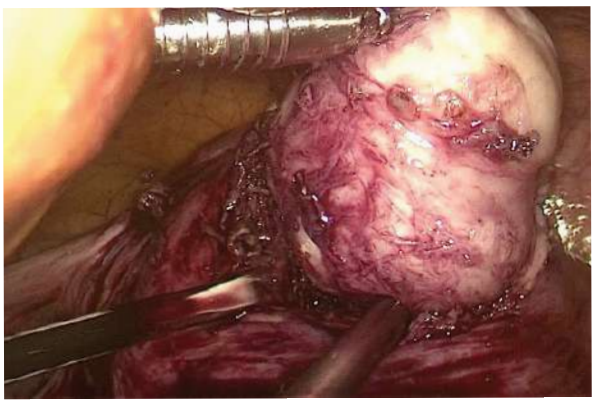
Uterine Fibroids (Subserosal and Intramural)

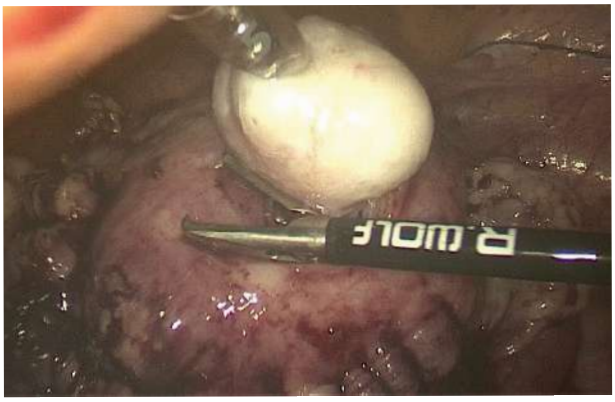


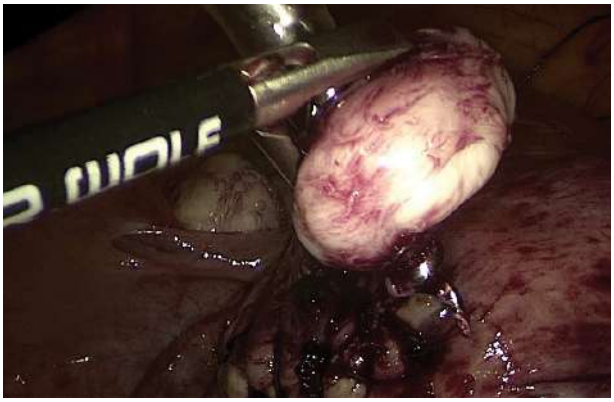
Pedunculated Serosal Fibroid



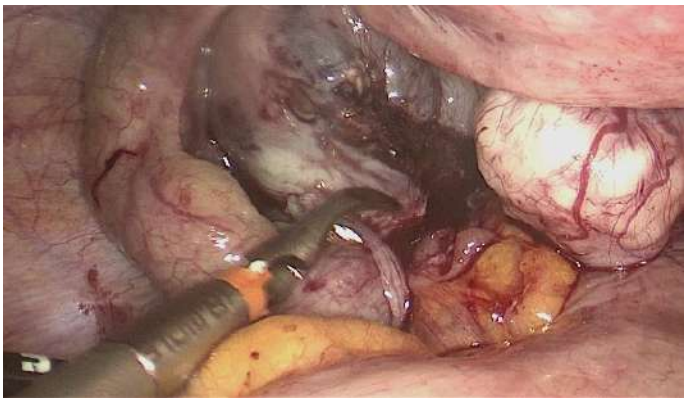
Dissection of Fibroid



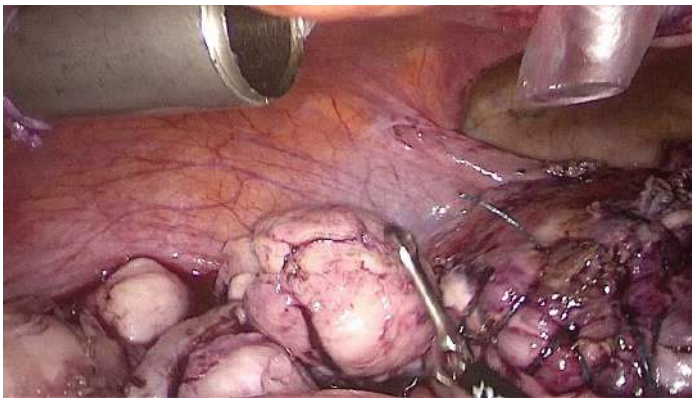




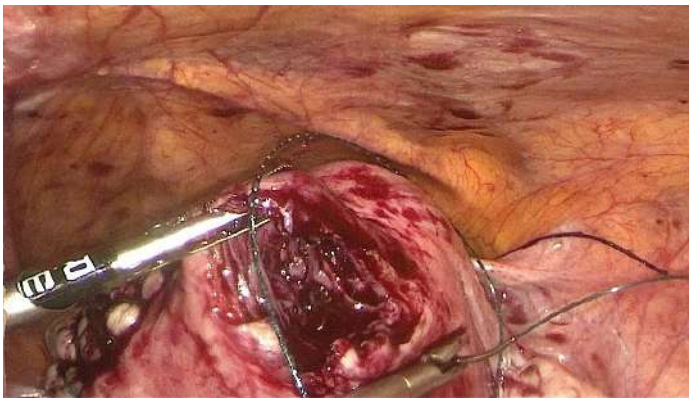
Multiple Fibroids Extraction



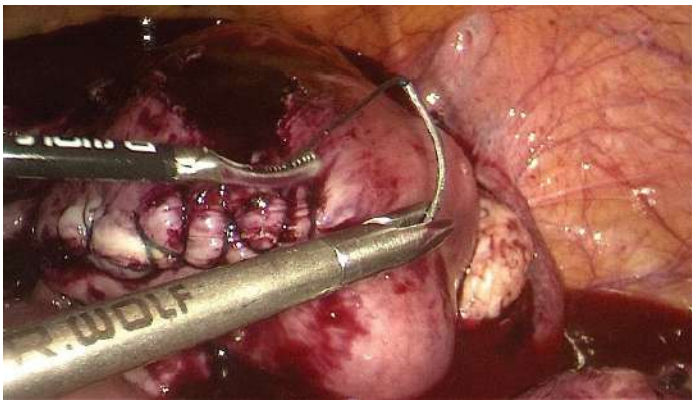
Endometrioma (Chocolate Cyst) of Left Ovary and Left Hydrosalpinx



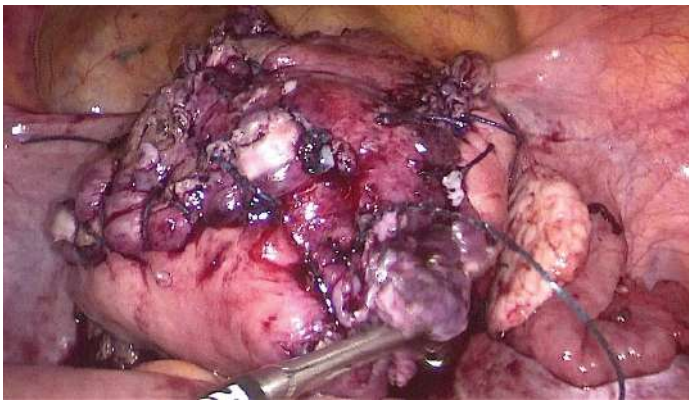
Extracted Fibroids in Pelvic Cavity



Cavity post-Fibroid Extraction



Pre-suturing of Extracted Fibroid Cavity



Completely Sutured Cavities of the Uterus

POST PROCEDURE

Post-surgery, the patient made an excellent recovery, free from pain. She was discharged on post-op day 3. The stent has since been removed, and she now enjoys a return to full health and well-being.

DISCUSSION

Multiple fibroid uterus with ureteric compression is a complex condition that requires a multidisciplinary approach for effective treatment. Laparoscopic surgery, performed by a team of gynaecologists, laparoscopic surgeons, and urologists, is a viable option (1).

Considerations for Laparoscopic Surgery:

- Size and number of fibroids
- Location of fibroids within the uterus
- Patient's desire to retain fertility
- Presence of ureteric compression

Laparoscopic myomectomy can be a valuable strategy for patients who desire fertility preservation. With advantages such as minimal postoperative pain, rapid recovery, aesthetic outcomes, and good reproductive outcomes, the laparoscopic approach is considered the leading surgical approach in the field (2).

Intramyometrial injection of vasoconstriction agents (vasopressin, epinephrine) in the myometrium can successfully reduce bleeding during laparoscopy (3).

Barbed sutures are among the most commonly used types of sutures. The major advantage is the ability to maintain tension by suturing and the lack of necessity for knots. This material is preferred for laparoscopic myomectomy, as multiple studies have shown the benefits of its use. Unidirectional barbed sutures with intracorporeal knots are associated with a shorter uterine wall repair time and significantly lower haemoglobin drop (3).

CONCLUSION

This case highlights the effectiveness of a coordinated, multidisciplinary approach in managing complex medical issues, leading to a successful outcome and enhanced quality of life for the patient. It is the perfect opportunity for a multidisciplinary team endeavour. The aim is to return the patient to optimal health as quickly as possible.

A team of specialists, including gynaecologists, laparoscopic surgeons, and urologists, collaborate to ensure optimal outcomes. This team approach is crucial when dealing with complex ureteric compression cases.

By considering these factors and collaborating across specialities, healthcare providers can effectively treat multiple fibroid uterus with ureteric compression (4).

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An Overview of Plantar Fasciitis

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INTRODUCTION

Plantar fasciitis (PF) is a prevalent degenerative condition that causes heel pain in both active and sedentary individuals (1). It affects 10% of the population between 40 and 60 years old. PF predominantly affects one foot, however, nearly 30% of individuals experience bilateral PF (2). PF has several causes, but chronic exertion and weight-bearing activities are the leading causes (2). Patients typically experience sharp heel pain in the morning that reduces during ambulation (1).

PF can be clinically diagnosed by taking the patient's physical history and employing imaging techniques such as X-rays, ultrasound, or magnetic resonance imaging (1). It can also be treated conservatively with exercises to stretch and strengthen the muscles, orthotic devices to redistribute fascial load, and shock wave therapy to promote neovascularisation (3). Pharmacological treatments can also be given to ease pain and promote tissue building, and surgical treatments may be employed for patients who do not show improvement with conservative therapies (4,5).

This article briefly discusses the risk factors, diagnostic characteristics and treatment approaches of plantar fasciitis.

PATHOPHYSIOLOGY AND RISK FACTORS

PF occurs due to mechanical injury of the plantar fascia muscle situated at the medial tuberosity. Overuse of this muscle leads to microtears in the ligament, collagen disarray, granulation and subsequent degenerative changes (2,3). Histological findings of patients with PF show the cause of myxoid degeneration, fragmentation of the PF, and the adjoining perifascial structures (3).

Risk factors of plantar fascia are:

- Body mass index > 27 kg/m^2
- Extreme running
- Tightness in foot and calf muscle tightness
- Discrepancy in one's limb lengths
- Long duration of standing or walking

- Pes cavus or pes planus
- Reduced ankle dorsiflexion
- Sedentary lifestyle

DIAGNOSIS OF PLANTAR FASCIITIS

The diagnosis of PF is based on the patient's history, physical examination, and other predisposing risk factors (1). The patient commonly complains of sharp pain in the medioplantar region when waking up in the morning or after being seated for a long time (1,4). The pain generally goes away during activity but returns when resting (1). The different diagnostic methods and their diagnosing features are demonstrated in the image below:

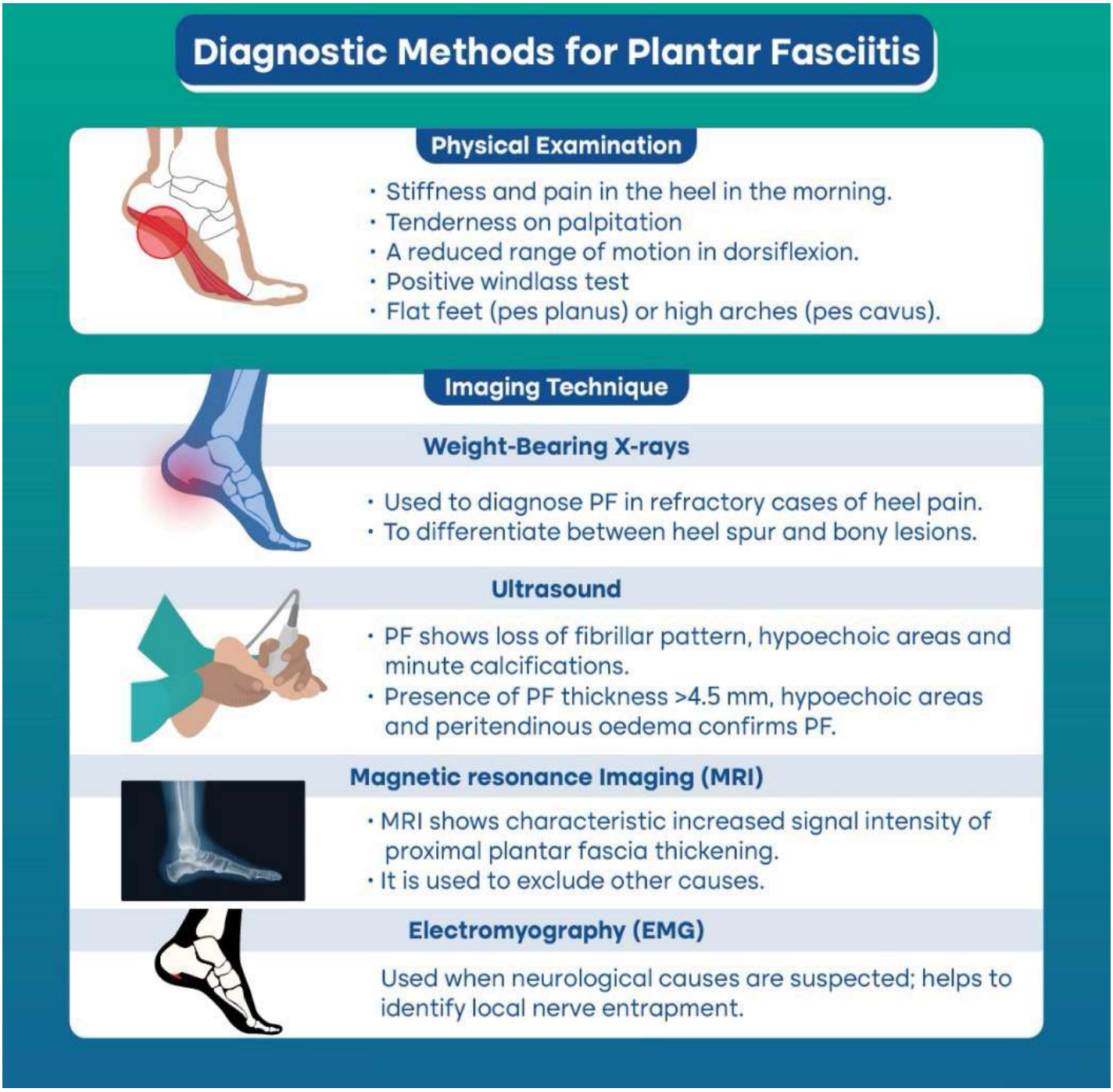


Figure 1: Methods to Diagnose Plantar Fasciitis (1,6)

TREATMENT METHODS OF PLANTAR FASCIITIS

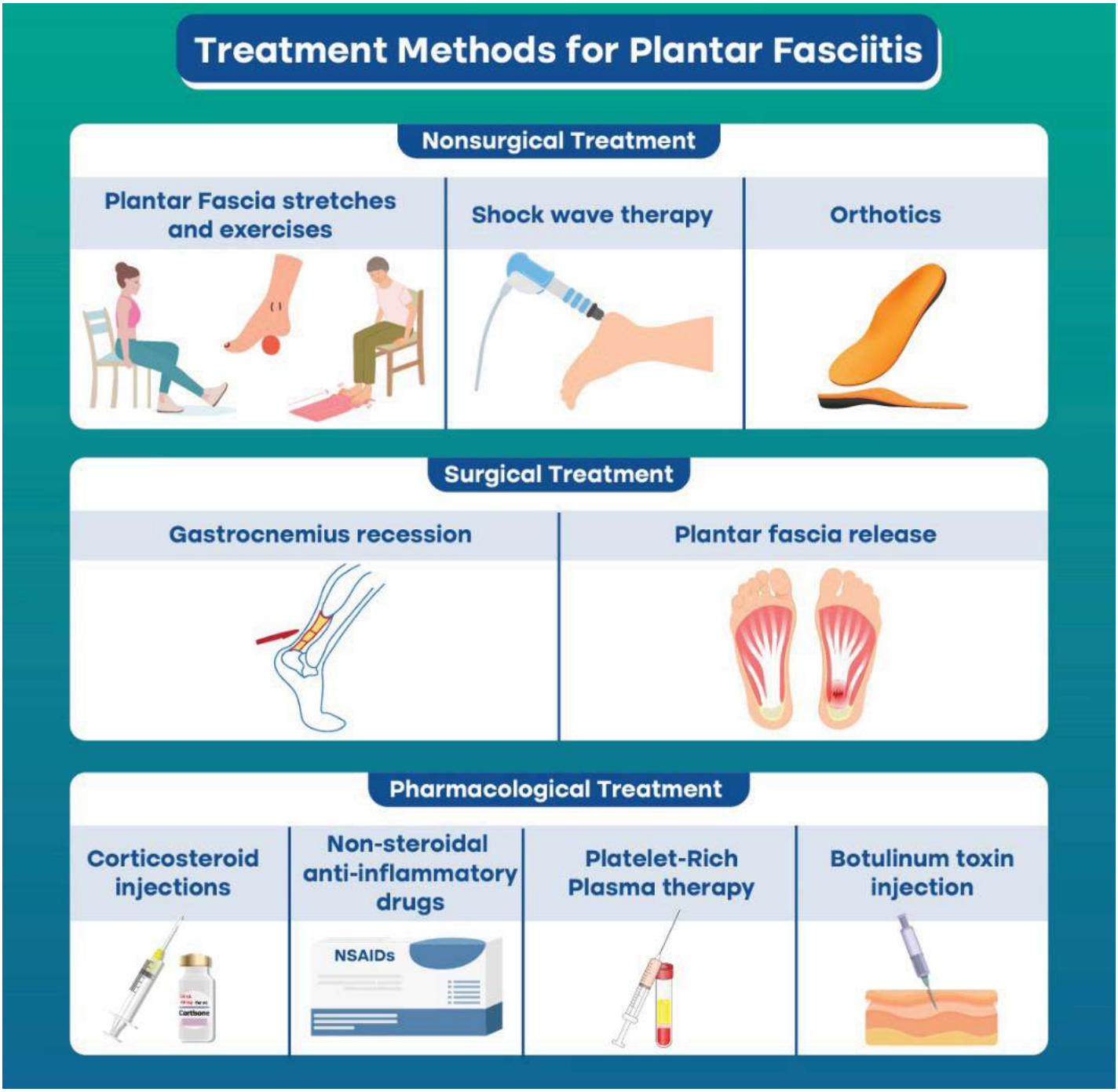


Figure 2: Treatment Approaches for Plantar Fasciitis (1,4,7)

NON-SURGICAL TREATMENT

1. Plantar fascia stretches and exercises:

Stretching and strengthening exercises are beneficial for improving gait and reducing pain in PF (4). Simple methods such as wall stretches, chair stretches, standing on slant boards while working, dynamic arch stretching over a ball, cross-frictional stretching of the fascia, and towel stretching in the morning are some effective ways to stretch the PF (4). Strengthening exercises include towel curls, toe taps, and picking up coins or marbles with toes (4). These exercises help to improve the flexibility of the calf muscles and intrinsic muscles (4).

2. Shock wave therapy:

Extracorporeal shock wave therapy (ESWT) is used for patients who show no relief after at least 6 months of conservative therapy (8). ESWT delivers low-energy, high-acoustic waves to the targeted region, causing microtrauma that facilitates neovascularisation, increased growth factors, and tissue regeneration (1). Additionally, ESWT provides short-term pain relief, including pain associated with morning stiffness and walking (1).

3. Orthotics:

Orthotic devices may be used as a complementary therapy in treating plantar fasciitis (5). Foot orthoses relieve abnormal foot-loading during weight-bearing activities by distributing the force and pressure on the plantar fascia (5). There are two types of orthotic devices: prefabricated orthotics with viscoelastic heel pads, multilayered insoles and custom orthotics tailored to the patient's foot (5).

These devices provide support in the longitudinal arch and increase the midfoot contact area, thus providing comfort and improving foot functionality (5). Patients with complaints of morning pain are recommended to immobilise the foot with a night splint, but its use is limited due to discomfort and poor compliance (1).

SURGICAL TREATMENT

1. Gastrocnemius recession:

It is believed that the contraction of the gastrocnemius causes tension in the Achilles tendon, which limits the ankle's dorsiflexion movement (9). If gastrocnemius release is not achieved by conservative treatment, surgical recession or lengthening of the gastrocnemius muscle can be performed (9).

2. Plantar fascia release:

Plantar fascia release or partial plantar fasciotomy is the mainstay procedure for PF (10). Different types of fasciotomies include open, percutaneous, and endoscopic approaches (7). Complete fasciotomy has been associated with instability, so partial fasciotomy of the 2/3rd portion of the medial fascia has been increasingly employed (7). A blunt dissection has been recommended to prevent the risk of nerve entrapment during cannula placement (7). Other complications include heel pain, incisional pain, calcaneal stress-induced fractures, and surgical site infection (7).

PHARMACOLOGICAL TREATMENT

1. Corticosteroid injections:

Although PF is a degenerative condition, corticosteroids have been shown to improve heel pain via their anti-inflammatory action (1). Corticosteroid administration inhibits fibroblast proliferation and the production of proteoglycans and glycoproteins (1). However, this action can lead to PF atrophy and its complete rupture (1). Therefore, corticosteroids provide only short-term relief and should be used with caution (1).

2. Non-steroidal anti-inflammatory Drugs (NSAIDs):

NSAIDs can alleviate pain by inhibiting inflammatory cycles (1). They can be taken orally or applied locally. NSAIDs provide short-term relief and improve functionality when combined with other conservative treatment options (1).

3. Platelet-rich plasma therapy (PRP):

PRP is an emerging regenerative therapy for various ligament and joint disorders, including PF (11). It consists of autologous whole blood that is centrifuged to contain platelets, growth factors, and anti-inflammatory cytokines (12). These growth factors are presumed to activate cell mechanisms that can restore PF (1). The use of PRP therapy has been limited by the cost of commercial kits and the lengthy process of laboratory PRP preparation (12).

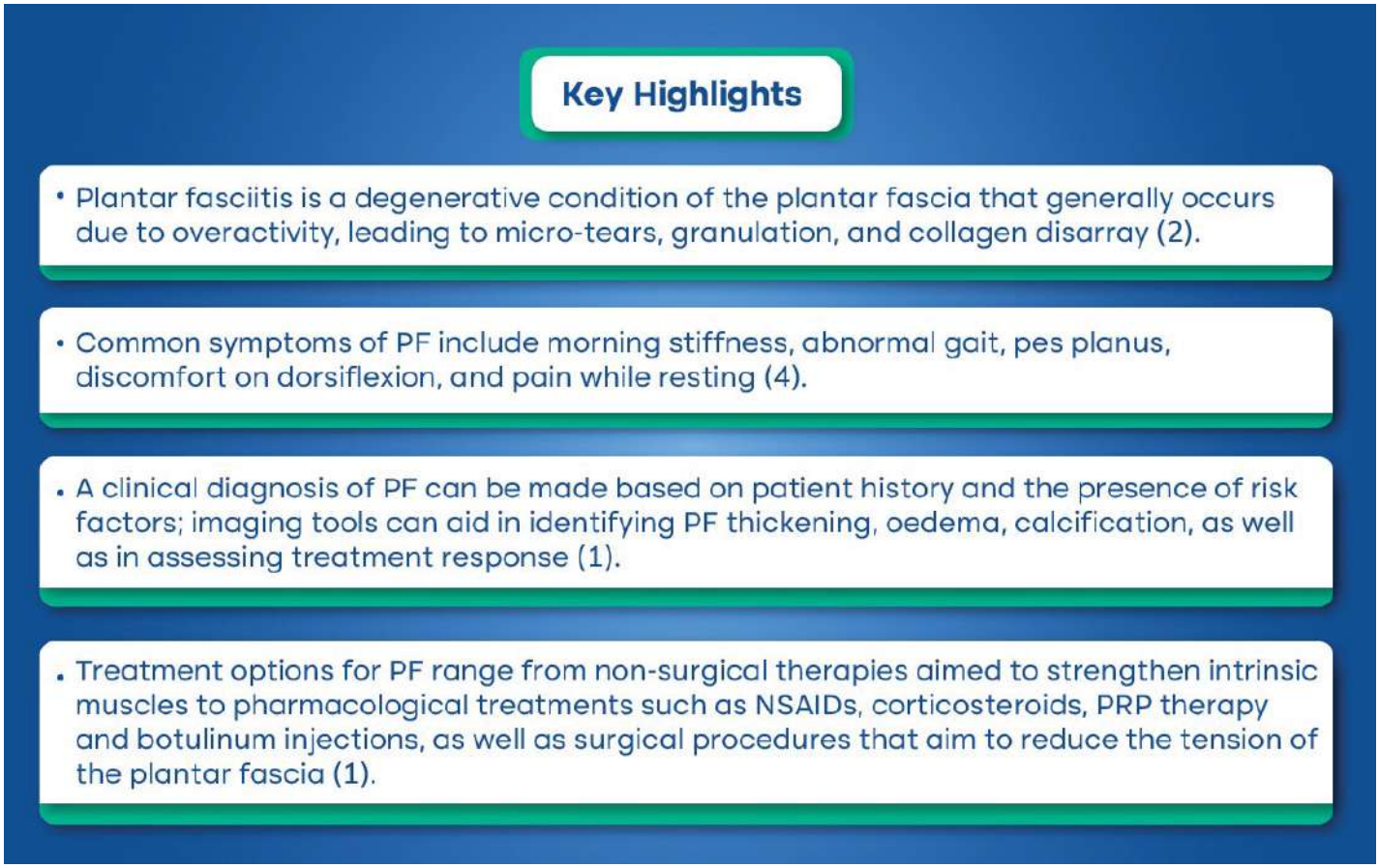
In a randomised controlled trial comparing PRP injection to steroid injection, the PRP therapy group showed a significant decrease in the visual analogue score (1.97 + 1.13) compared to the steroid group (2.71 ± 0.94) at the 6-month follow-up (12). Similarly, there was a significant increase in the American Orthopaedics.

Foot and Ankle Society scores in the PRP group (86.04 ± 7.45) compared to the steroid group (81.23 ± 9.60) (12). The PRP group also showed a greater reduction of plantar fascia thickness in the PRP group versus the steroid group (3.53 ± 0.81 versus 4.58 ± 1.02) (12).

4. Botulinum toxin injection (BTX):

BTX injections in the PF and gastrocnemius soleus muscle can reduce muscle tension, provide relaxation and create muscle paralysis due to their anti-glutaminergic effects (1,3). BTX injections are without the risk of PF atrophy or rupture that may occur in surgical procedures (1). Combining BTX injection with PF stretching exercises has shown better pain relief and improved functionality (1).

In a meta-analysis, BTX injection has been shown to provide sustained pain relief at 12 months relief (mean difference, −2.07 [95% CI, −3.21 to −0.93]; P=.0004; I2=97%) and functional improvement (standardized mean difference, 1.15 [95% CI, 0.39-1.91]; P=.003; I2=87%) till 6 months (13).



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Early Identification and Treatment of Giant Retinal Tear (GRT) using a Non-invasive Prophylactic Laser Barrage to prevent the development of Retinal Detachment (RD) at Aster Hospital, Mankhool

Dr. Gazala Hasan Mansuri
Ophthalmology (Specialist)

INTRODUCTION

- 13 year old male
- History of cricket ball injury to the left eye for a day
- No family history of medical illness
- Admitted with –
  - Complaints of pain and redness in the left eye for a day
  - Blurry vision

FINDINGS

During Examination:

- Visual acuity (unaided)
  - Right Eye: 6/6
  - Left Eye: 6/12 Partial; Pinhole: 6/6 Partial, blur
- Intra-ocular Pressure (IOP) with Non-contact Tonometry (NCT)
  - Right Eye: 21 mmHg
  - Left Eye: 14 mmHg
- Objective Refraction
  - Right Eye: -0.75/-0.50 DCx180°
  - Left eye: -2.25/-0.75 DCx150°
- Subjective Refraction
  - Right Eye: Plano 6/6
  - Left Eye: -1.50/-0.50 DCx150°, 6/6 Partial NIG
- Near Vision: Both eyes N6

The patient underwent Slit Lamp Biomicroscopy and Indirect Ophthalmoscopy.On examination, the right eye findings were within the normal limits.

Left Eye Findings:

Anterior Segment:

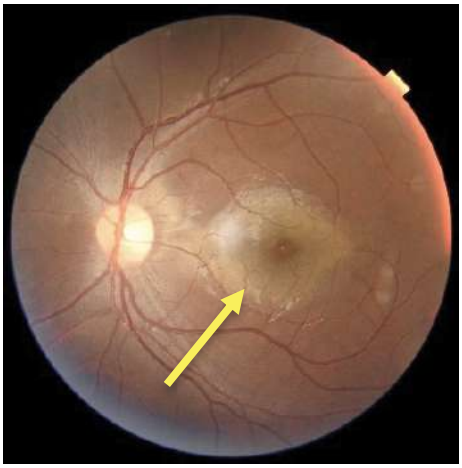
- Cornea & Conjunctiva: Congestion++
- Iris and Pupil: Sluggishly reacting to light
- Anterior Chamber: Cells 2+
- Lens: Clear
- Ocular Movements: Normal, full in all gazes

Posterior Segment:

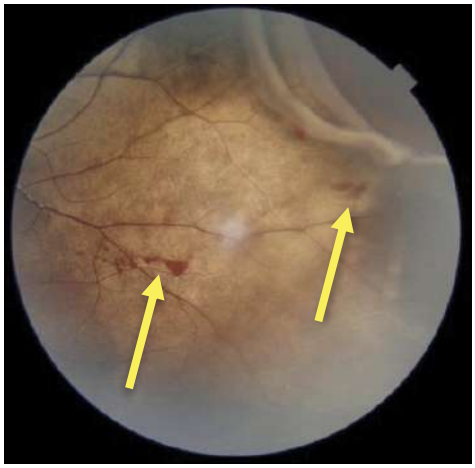
- Disc normal
- Berlin's oedema
- Peripheral retinal oedema++
- Localised retinal haemorrhages
- Inferiorly multiple retinal breaks with localised retinal detachment
- Superotemporal giant retinal tear from 12 to 3 o'clock and break at 3 o'clock

The findings were confirmed using Fundus Photo and Optical Coherence Tomography (OCT) Macula. Medical treatment was started and planned for an Emergency Laser Procedure.

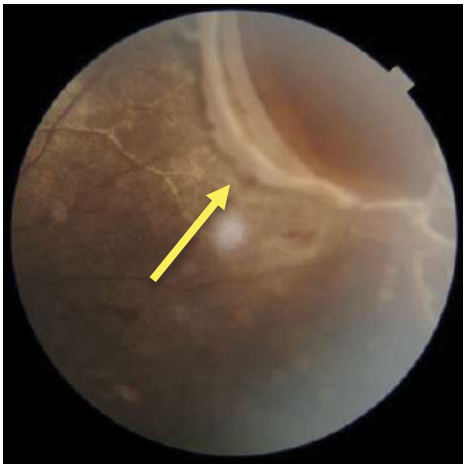
Pre-op Fundus Images



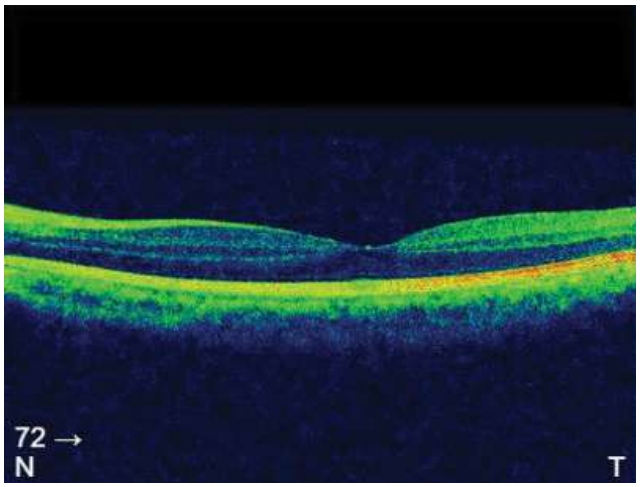
Berlin's Oedema



Retinal Oedema and Haemorrhages



Giant Retinal Tear



Pre-op OCT

DURING PROCEDURE

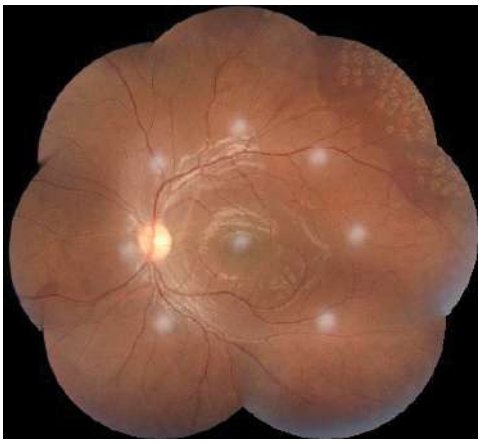
The patient was taken for Left Eye Prophylactic Laser Barrage under topical anaesthesia with local and general anaesthesia as a backup:

- After taking informed consent, topical anaesthesia was applied using Proparacaine eye drops.
- The patient was positioned on a Slip-lamp laser delivery system.
- The Super Quad 160 PRP Laser Lens coupled onto the cornea with an ophthalmic gel was used to view the retina.
- The giant retinal tear and other retinal breaks were covered all over with 3-4 rows of laser burns using a 532 nm Green Laser.
- Lens was removed, and antibiotic eye drops were applied.

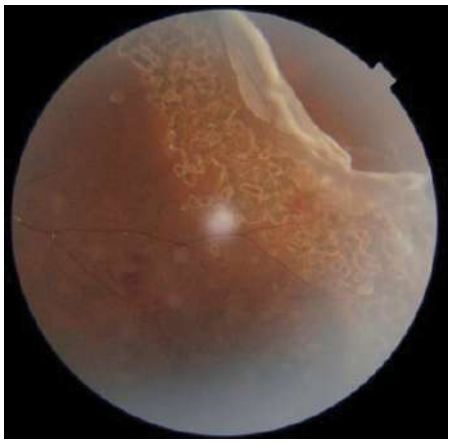
POST PROCEDURE

The patient tolerated the procedure well and was in stable condition on discharge the same day. During the follow-up evaluation, the laser marks healed completely, covering all breaks and successfully preventing the development of retinal detachment.

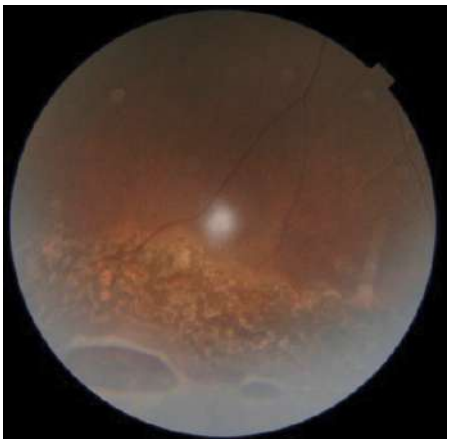
Post-op Fundus Images



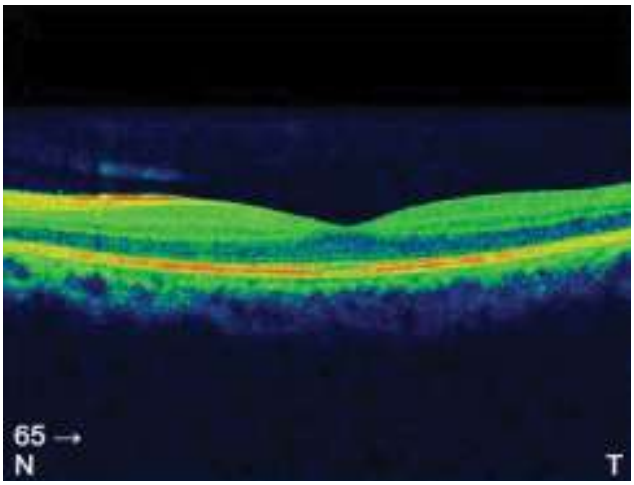
Retina-on



Well-lasered
Giant Retinal Tear



Well-lasered
Inferior Retinal Breaks



Post-op OCT

DISCUSSION

Blunt eye trauma can manifest as open globe and closed globe injury. Closed-globe injuries are often seen in the paediatric population while playing. The most common paediatric eye injuries are sports-related trauma, wooden stick injury, and thermal burns due to firecrackers. Blunt trauma to the eye can present with varied manifestations involving both the anterior and posterior segments of the eye.

Giant Retinal Tears (GRTs) are full-thickness circumferential retinal tears that involve more than 3 clock hours (90 degrees) of the peripheral retina. The reported incidence of GRT is about 0.09 per 100,000 people. Ocular risk factors include high myopia and closed globe injury, while systemic risk factors include young age and collagen vascular disorders (e.g., Stickler, Wagner, Marfan, and Ehlers-Danlos syndromes).

Management for GRT without Retinal Detachment (RD):

In the absence of an associated RD, demarcation of the GRT with laser photocoagulation with or without adjunctive cryotherapy may be considered. One should aim to apply at least 3 concentric rows of confluent white retinal burns along the edges of the GRT. It is essential to apply the laser all the way to the ora serrata to reduce the risk of an RD. It is critical to thoroughly check the remaining retina to ensure there are no other breaks and treat them as well, if any.

GRTs account for approximately 1.5% of rhegmatogenous retinal detachments, and surgical management of RD associated with a GRT may be challenging, especially in the paediatric age group in the absence of Posterior Vitreous Detachment (PVD) and high risk of Proliferative Vitreoretinopathy (PVR).

A GRT is a potentially blinding condition, but early identification and intervention can improve visual prognosis and outcome.

Implementation of Educational programs to promote early comprehensive Ophthalmological examination following eye injury and use of eye protection to reduce the incidence of paediatric eye trauma seems to be the need of the hour, as most eye injuries in children are preventable.

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Endoscopic Ultrasound in Idiopathic Acute Recurrent Pancreatitis

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INTRODUCTION

Acute pancreatitis (AP) is an inflammation of the pancreas involving the peripancreatic tissue and distant sites. About 22% of patients experience at least one recurrence of pancreatitis, and 10% of patients progress to chronic pancreatitis (CP) (1). The risk of recurrence and progression to CP is linked to the cause of AP (1). However, the cause remains unknown in 10% to 30% of cases (1). When this occurs, AP or recurrent acute pancreatitis (RAP) is classified as idiopathic acute pancreatitis (IAP) or idiopathic recurrent acute pancreatitis (IRAP), which has a high recurrence rate of 70% (2).

At least two episodes of AP characterise IARP without any features of chronic pancreatitis, with symptoms that nearly or entirely resolve between episodes (3). Given the complexities of identifying the aetiology of IARP, a more thorough evaluation is required, which may include advanced imaging techniques such as endoscopic retrograde cholangiopancreatography (ERCP), endoscopic ultrasound (EUS), or magnetic resonance cholangiopancreatography (MRCP) (1). Amongst these, EUS has been established as the ideal imaging technique for examining the pancreatic and biliary system due to its safety, low invasiveness, and high diagnostic yield of up to 80% in patients with IARP (1,4).

This article will explore the important role of EUS in uncovering the underlying causes of IARP, examining its diagnostic accuracy, optimal timing, safety profile, and potential for technological advancements in the future.

ROLE OF EUS IN IARP

EUS has emerged as an important diagnostic technique for the unexplained attack of AP, identifying a possible underlying aetiology in 29% to 88% of cases (5). American guidelines indicate that pancreatic duct obstruction is a common cause of acute pancreatitis (6). Therefore, if the cause is unknown, it is essential to rule out conditions such as pancreatic adenocarcinoma, metastases, intraductal papillary mucinous tumours, or neuroendocrine tumours once the acute inflammation has subsided (6). Individuals over the age of 40 are more likely to develop pancreatic cancer as a result of IARP (5).

In patients with IARP, EUS has been shown to identify the underlying cause in the majority of cases (6). For instance, a prospective study by Yusoff et al. found that nearly one-third of patients with an initial attack of idiopathic pancreatitis had an identifiable cause when EUS was employed (7).

After ruling out biliary causes of IARP, EUS is particularly useful for detecting microlithiasis, and cross-sectional imaging should be reassessed to exclude pancreatic neoplasms, especially in those over 50 years of age (8).

Many patients with IARP have a history of cholecystectomy, and although the incidence of biliary disease is lower in those without a gallbladder, lithiasis remains the second most common EUS finding in IARP after chronic pancreatitis (9). Other studies have linked conditions such as sphincter of Oddi dysfunction and pancreas divisum with higher recurrence rates of IARP (9).

COMMON CAUSES OF IARP

IARP can be caused by mechanical, toxic-metabolic, and miscellaneous factors, the individual causes in these categories are depicted in Table 1 below (10).

IARP Causes

Category	Causes
Mechanical	Microlithiasis, sphincter of Oddi dysfunction, pancreas divisum, other congenital anomalies, pancreatobiliary tumors, trauma and parasitic infestations
Toxic-Metabolic	Hypertriglyceridemia, hypercalcemia and medications
Miscellaneous	Vascular issues, hereditary pancreatitis, genetic mutations and chronic pancreatitis

Table 1: IARP Common Causes (10)

WHEN TO PERFORM EUS

EUS is typically recommended as a second-line or follow-up procedure for IARP (9). It is performed after the initial presentation of pancreatitis (4). It is primarily indicated when conventional imaging methods, such as abdominal ultrasound and CT scans, fail to identify the cause of acute pancreatitis (9). While there is no universally agreed-upon optimal timing for performing EUS after the onset of acute pancreatitis, it is generally advised to wait approximately 4 weeks in cases of mild to moderate acute pancreatitis (9). This allows the acute phase to resolve, potentially reducing the risk of procedural complications and improving visualisation of the pancreatic tissue, as inflammation and oedema tend to decrease over this period.

The decision to perform EUS should be guided by the severity of the pancreatitis, often using the CT severity index as a reference (11). In severe cases, waiting 6 weeks may be a safer approach (11). However, for patients with IARP, EUS can be performed earlier, especially in those suspected of having biliary obstruction or mild to moderate pancreatitis, where structural abnormalities may be missed by standard imaging techniques (9).

DIAGNOSTIC ACCURACY OF EUS

Evaluating the diagnostic accuracy of endoscopic ultrasound in identifying the underlying causes of IARP is challenging, given the lack of a gold standard test to diagnose potential etiologies (9). Unlike other medical conditions with definitive diagnostic criteria, IARP is a complex and heterogeneous disorder with a range of possible contributing factors, such as microlithiasis, small bile duct stones, pancreas divisum, congenital

pancreatic duct anomalies, and small pancreatic tumours (9). These varied causes necessitate different diagnostic methods, leading to variability in the diagnostic yield of EUS depending on the specific aetiology and the expertise of the healthcare professionals involved (9).

With a gold standard test for IARP, it is easier to conclusively determine the accuracy of EUS in detecting its causes (9). Nonetheless, a review of 34 studies comparing EUS with MRCP suggests that EUS may have an advantage, with a diagnostic yield of 64% compared to 34% for MRCP (9). However, the overall diagnostic process for IARP typically involves a combination of clinical judgment, exclusion of other conditions, radiological imaging, and endoscopic techniques like EUS, each of which has its strengths and limitations (9).

EUS, ERCP AND MRCP

a) Comparison of EUS and ERCP:

The introduction of EUS and MRCP has shifted the diagnostic approach for IARP, reducing ERCP's role to primarily therapeutic use (2). The table below summarizes the key differences and similarities in their diagnostic yield, usage, complication rates, and advantages (2).

EUS vs. ERCP

Feature	Endoscopic ultrasound	Endoscopic retrograde cholangiopancreatography
Diagnostic Yield	Approximately 80%	Approximately 80%
Primary Use	Diagnostic	Both diagnostic and therapeutic
Complication Rate	Low	Higher (10-15%)
Key Advantages	• High accuracy for detecting microlithiasis and neoplasms • Low complication rate • Can detect small pancreatic and biliary tumors	• Offers both diagnosis and treatment • Long standing method in clinical practice
Key Disadvantages	• Requires specialized expertise • Limited therapeutic capability	• Higher complication rate • More invasive compared to EUS

Table 2: EUS and ERCP (2)

b) Comparison of EUS and MRCP:

MRCP serves as a non-invasive alternative to EUS in evaluating IARP (10). The following table provides a comparative overview of EUS and MRCP, focusing on their diagnostic capabilities, safety profiles, and application in clinical practice (10).

EUS vs. MRCP

Feature	Endoscopic ultrasound	Magnetic resonance cholangiopancreatography
Diagnostic Yield	64%	34%
Primary Use	Diagnostic	Diagnostic
Complication Rate	Low	None (Non-invasive)
Key Advantages	• High accuracy for biliary and pancreatic diseases • Can detect small tumors • Allows for EUS-guided sampling	• Non-invasive • Good for anatomical assessment • No radiation exposure
Key Disadvantages	• Requires specialized expertise • Mildly invasive	• Lower diagnostic accuracy for certain conditions • Limited in detecting microlithiasis

Table 3: EUS and MRCP (10)

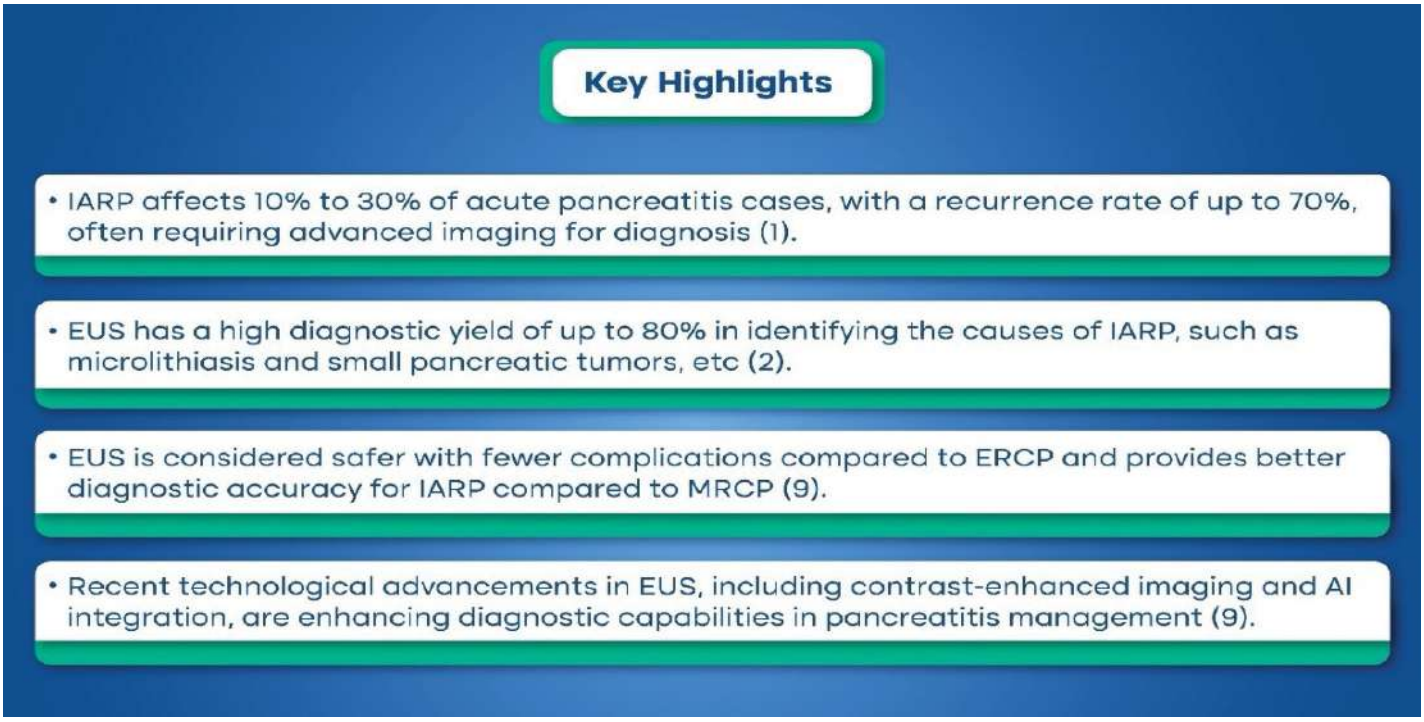
SAFETY OF EUS

EUS is generally recognised for its positive safety profile, with a low rate of complications (9). Although severe complications like oesophagal or duodenal perforation are infrequent, they are slightly more common compared to standard endoscopy due to the rigid linear ultrasound transducer on the tip of the echoendoscope (9). In cases where EUS is used for therapeutic procedures or fine-needle aspiration biopsies of suspected pancreatic lesions, there have been occasional reports of post-procedural bleeding (9). The safety of EUS procedures is closely linked to the expertise and experience of the endoscopist; procedures performed by highly skilled professionals tend to have fewer complications and a higher likelihood of accurate diagnosis (9). Importantly, EUS is considered a reliable and safe diagnostic tool, even in pediatric patients (9).

ADVANCES IN ENDOSCOPIC TECHNOLOGY FOR PANCREATITIS

Recent innovations in endoscopic technology are revolutionizing the diagnosis of IARP (9). Enhanced imaging techniques like contrast-enhanced EUS, intraductal ultrasound, and elastography are improving the differentiation of benign and malignant lesions (9). EUS-guided fine-needle aspiration and biopsy are crucial for precise tissue analysis, with future advancements promising real-time evaluation for faster diagnoses (9).

Molecular and genetic testing through EUS-guided samples may lead to personalized treatment approaches (9). The incorporation of artificial intelligence and machine learning into EUS imaging could further enhance diagnostic accuracy, identifying subtle abnormalities that may be overlooked by the human eye (9). These developments offer promising advancements in the management of pancreatitis (9).



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An Atypical Case of Rhabdomyolysis treated effectively at Aster Clinic, Al Qusais, Dubai

Dr. Akta Trivedi
Neurology (Specialist)

PRESENTATION

- 45-year-old male, born to a non-consanguineous marriage and has a desktop work profile
- History of recurrent episodes of leg cramps, generalised weakness, and fatigue, which increased in the last 6 months, affecting his routine daily activities.
- In view of Intermittent episodes of leg cramps and fatigue over the last few years and more from the last 6 months, he was advised symptomatic management by clinicians during his visit to healthcare centres, to which he partially responded.
- These episodes were noted after his prolonged workout at the gym and intense exercise. The pain mostly affected the thighs and the lower leg muscles to a lesser degree, leading to difficulty in walking. He did not mention any associated urine discolouration, chest pain, giddiness or palpitation.
- No recent history of any febrile illness, trauma, joint pains, rash or any skin discolouration.
- No family history of similar medical issues

FINDINGS

On examination:

- Haemodynamically stable
- Central Nervous System examination normal
- Muscle strength evaluation: Normal, according to the Medical Research Council (MRC) grading scale
- No pallor, cyanosis, clubbing, oedema and lymphadenopathy

WORKUP

Laboratory investigations:

- CBC: Normal
- ESR: 04 mm/hr
- Serum electrolytes: Normal
- Serum glucose: 83.1 mg/dl (<200 mg/dl)
- RA factor: negative
- Thyroid secreting hormone: 0.81 uIU/L (0.27 – 4.2 uIU/L)

- Serum creatinine: 1.03 mg/dL (0.67 – 1.17 mg/dL)
- Serum uric acid: 5.17 mg/dL (2.6 – 6 mg/dL)
- Serum lipid profile: Normal
- Serum ANA profile: Negative
- Acetylcholine Receptor Antibody: Negative
- CPK total: 207 IU/L (First visit) to 226 (second visit after 1.5 months)

Other investigations:

- Nerve Conduction Study (routine and repetitive nerve stimulation protocol): Within normal limit
- Electromyography Test (tibialis anterior, quadriceps): Within normal limit
- MRI bilateral Thighs: Normal study
- **ExomeMit:** Clinical exome and whole mitochondrial genome sequencing variant: c.12958C>T detected.
  - **Result:** A variant of uncertain significance related to the given phenotype was detected.
  - **Single Nucleotide Variant (SNVs)/Indels:**

Gene (Transcript)	OBSCN (+) (ENST00000680850.1)
Location	Exon 49
Variant	c.12958C>T (p.Arg4320Ter)
Zygosity	Heterozygous**
Disease (OMIM)	Susceptibility to Rhabdomyolysis - 1 (OMIM#620235)
Inheritance	Autosomal Recessive**
Classification	Uncertain Significance (PM2)

****This autosomal recessive disorder is caused by bi-allelic (homozygous or compound heterozygous) pathogenic/likely pathogenic variants in the OBSCN gene. The assay detected a single heterozygous variant of uncertain significance in the OBSCN gene mentioned in the table above. No other clinically relevant variant was detected in this gene's coding region and exon-intron boundaries.**

CONCLUSION

Given the mildly elevated level of CPK total and the rest of the related workup within normal limits, possibility of exercise-induced rhabdomyolysis was considered. Clinically, rhabdomyolysis is exhibited by a triad of symptoms: myalgia, weakness and myoglobinuria manifested as the classically described tea-coloured urine. The atypical feature here was the absence of tea-coloured urine (myoglobinuria). He was also ruled out for any other systemic involvement by the involvement of a Cardiologist and Nephrologist.

The patient presented with exercise intolerance and high serum CK levels indicative of rhabdomyolysis without evidence of cardiac involvement or renal involvement. After ruling out other aetiologies for rhabdomyolysis, considering the increment of symptoms and elevating level of serum CPK total, the possibility of genetic aetiology was considered. His genetic panel was sent to rule out mitochondrial myopathy/ dystrophy/ channelopathy. The test result showed susceptibility to rhabdomyolysis-1 OBSCN+ gene, an autosomal recessive OMIM phenotype, and Variant: c.12958C>T was detected.

He was managed for the same symptomatically by exogenous antioxidants and vitamin C, along with lifestyle changes and low-intensity workouts.

DISCUSSION

Rhabdomyolysis is a complex medical condition involving the rapid dissolution of damaged or injured skeletal muscle. This disruption of skeletal muscle integrity directly releases intracellular muscle components, including myoglobin, creatine kinase (CK), aldolase, lactate dehydrogenase, and electrolytes, into the bloodstream and extracellular space. Rhabdomyolysis ranges from an asymptomatic illness with elevation in the CK level to a life-threatening condition associated with extreme elevations in CK, electrolyte imbalances, acute renal failure (ARF), and disseminated intravascular coagulation (1). Although rhabdomyolysis is most often caused by direct traumatic injury, the condition can also be the result of drugs, toxins, infections, muscle ischemia, electrolyte and metabolic disorders, genetic disorders, exertion or prolonged bed rest, and temperature-induced states such as neuroleptic malignant syndrome (NMS) and malignant hyperthermia (MH) (2).

Clinically, rhabdomyolysis is exhibited by a triad of symptoms: myalgia, weakness, and myoglobinuria manifested as the classically described tea-coloured urine. However, this rigid depiction of symptoms can be misleading as the triad is only observed in <10% of patients, and >50% do not complain of muscle pain or weakness, with the initial presenting symptom being discoloured urine (2). An elevated CK level is the most sensitive laboratory test for evaluating an injury to muscle that has the potential to cause rhabdomyolysis (assuming no concurrent cardiac or brain injury) (1).

Attempts to correlate the elevation in CK level with the severity of muscle damage and/or renal failure have had mixed results, although significant muscle injury is likely at CK levels >5,000 IU/L (1,3).

Treatment for rhabdomyolysis, at least initially, is mainly supportive, centring on managing the ABCs (airway, breathing, circulation) and measures to preserve renal function, including vigorous rehydration. Exogenous antioxidants and vitamin C have a limited role, along with lifestyle changes and low-intensity workouts (4).

To accurately diagnose rhabdomyolysis, the physician must have a high index of suspicion and perform a thorough history and physical examination.

Only recently, it has been demonstrated that bi-allelic loss-of-function OBSCN variants predispose individuals to recurrent rhabdomyolysis. This suggests that this gene should be screened in the diagnostic work-up of patients with rhabdomyolysis who remain genetically undiagnosed (1).

To date, only a small number of potentially disease-causing OBSCN variants are known, and the gene has not been consistently investigated in large-scale genetic surveys until very recently (5).

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