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HealthNews DIGEST

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Welcome to the 14th edition of HealthNews, where we delve into unique clinical cases and articles that continue to advance the world of medicine. The dedication of our doctors to improving healthcare is commendable.

HealthNews brings a curated collection of insightful clinical cases, ground-breaking research, and thought-provoking articles that showcase the excellent work being done in the medical sector. These contents deepen our knowledge of the medical field and motivate us to improve patient care.

As we navigate the continually changing healthcare environment, the knowledge and skills of our doctors are important. I urge everyone to participate and keep producing information that fosters medical innovation and quality.

Together, we are shaping the future of healthcare.

Dr. Ramanathan V

Medical Director
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I am thrilled to extend a warm welcome to all our doctors as we embark on the journey through the 14th edition of HealthNews, continuing the tradition of exploring unique clinical cases and thought-provoking articles.

It can be mentally and emotionally exhausting to handle complex and challenging cases. But it is truly admirable how committed our doctors are to coming up with solutions, navigating challenges with grace and unwavering resolve, providing comfort, and improving patient outcomes.

My deepest appreciation for your resilience and tireless efforts to tackle the demanding medical challenges embody the essence of healthcare excellence. Together, we can advance medical knowledge, foster innovation, and eventually enhance the lives of countless people.

Bilateral Giant Epididymal Cysts

Rare case of Bilateral Giant Epididymal Cysts managed successfully at Aster Clinic, Al Warqa, Dubai

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INTRODUCTION

An epididymal cyst is a fluid-filled sac that arises from epididymis and contains serous fluid (1). If it contains spermatozoa, it is called spermatocele. It can present at any age, with the incidence increasing with age. These are benign in nature and present as asymptomatic unilateral scrotal swelling, although rarely, these can be bilateral (2). The presence of asymptomatic, bilateral, and giant epididymal cysts is found in extreme rarity, with only a few case reports available in the literature. (2,3,4). Sonographically, they are thin walled, septated cysts within the epididymal head with dependent echoes (5). Surgery is indicated if the cysts are larger than 10 mm or 1 cm (6). Here, we present a rare case report of asymptomatic bilateral giant unilocular epididymal cysts in a middle-aged man.

PRESENTATION

- 50-year-old male presented to the outpatient department with complaints of bilateral scrotal swelling for 2 months, which were causing significant discomfort in routine activities even while walking and sitting.
- No other clinically relevant history

Clinical Presentation

FINDINGS

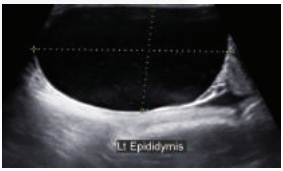
During Examination:

- Firm, fluctuant, and non-tender, bilateral scrotal swellings (right>left) were found adjacent to both testes
- Trans-illumination test was positive

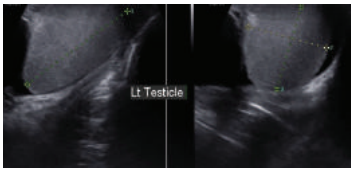
Scrotal Ultrasound:

It showed gross right hydrocele with a left epididymal cyst of 55 x 30 x 6 mm arising from the left epididymal head. Both testes appeared normal in size, shape, and echogenicity with the normal color flow.

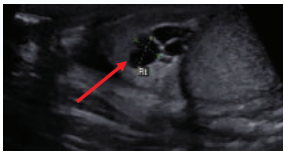
Cyst arising from Left Epididymal Head



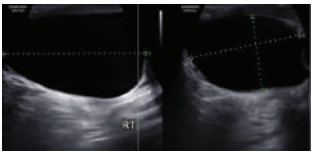
Left Epididymal Cyst



Left Testes



Right Epididymal Head



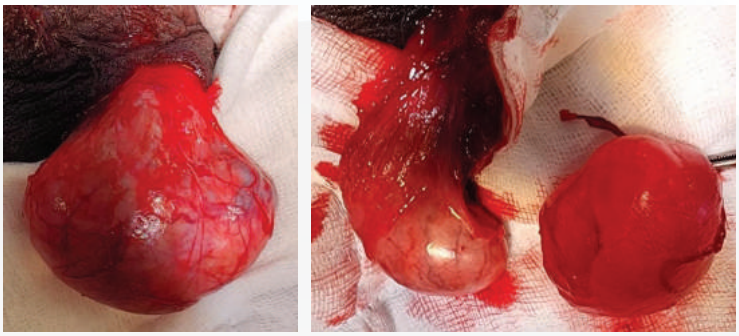
Right Hydrocele

Right Testes

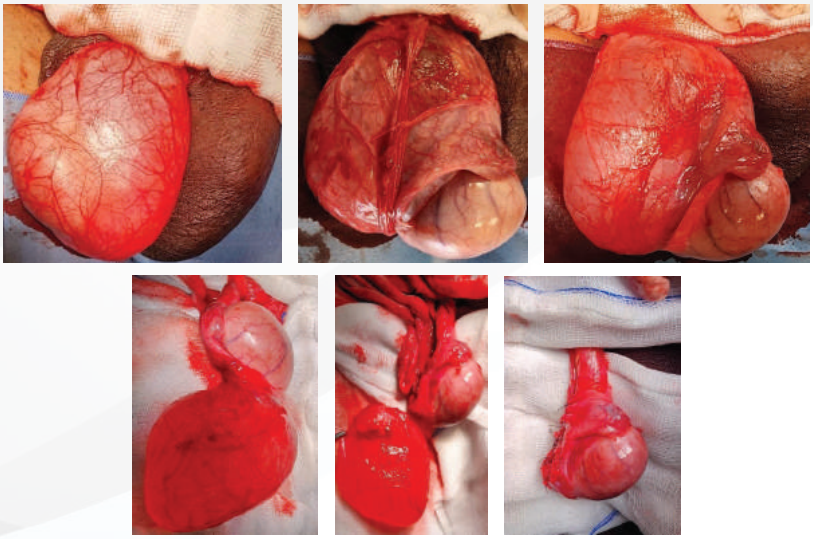
COURSE

The patient underwent Elective Surgery:

On exploration of the right side, a giant translucent cyst of 12 x 6.5 x 3 cm was identified arising from the tail of epididymis. On the left side, a 5 x 3 x 3 cm cyst was identified arising from the head of epididymis. Tunica vaginalis was everted and closed.



Intra-operative image of a Large Left Epididymal Cyst (from Head)



Intra-operative images of Giant Right Epididymal Cyst (from Tail)

POST PROCEDURE

The patient tolerated the procedure well and was discharged on the same day.

DISCUSSION

The aetiology of epididymal cysts is unclear and usually arises due to obstruction of the efferent epididymal ductule, which leads to dilatation and fluid collection. Obstruction may be due to inflammation or prior injury (7). These can arise from any part of the epididymis and occur at any age but are commonly found among adult men. They usually are unilateral and asymptomatic. Bilateral epididymal cysts are less frequent, and bilateral giant epididymal cysts are extremely rare (2,4).

Here we report bilateral giant epididymal cysts in a 50-year-old gentleman presented as asymptomatic scrotal masses. The epididymal cyst is palpated on clinical examination as an extra testicular mass, usually smooth, round, and characteristically located adjacent to the testis (1). These epididymal cysts are translucent since they contain clear fluid, but in some cases, they appear turbid due to spermatozoa. The differential diagnosis of cystic extra-testicular masses includes varicocele, adenomatoid tumour of the epididymis, para-testicular abscess, epidermoid cyst (monodermal teratoma) of the testes and epididymal cystic lymphangioma (5). Therefore, ultrasonography should be considered part of the diagnostic armamentarium, in addition to careful physical examination, where there are concerns for solid or growing masses, as there have been reports where indirect inguinal hernia have been sonographically reported as epididymal cysts (9). Our patient reported it as a large hydrocele on the right side. It is possible due to its large size, as it is significantly larger than the other similar reported cases (10). Ultrasound helps determine the testes location, site of origin, cyst content, size, shape, and vascularity. The head of the epididymis is identified as the most common site of origin of the cyst, while the body and tail of the epididymis are rare sites (8). In this case, the right cyst was found to arise from the tail, while the left was arising from the head.

The natural history of epididymal cyst remains unknown as it may regress or involute in some. Therefore, the best treatment option is unknown, which may include conservative management, aspiration and sclerotherapy, or cyst excision (6,8). Intervention/surgery is usually indicated in symptomatic cysts and those larger than 10 mm that do not involute over time (7). In this case, the patient presented with a large scrotal mass that caused discomfort in routine activities like walking and sitting. Thus, primary excision of bilateral giant cysts was performed. The biopsy report confirmed bilateral epididymal cysts.

CONCLUSION

Epididymal cysts are asymptomatic masses and conservative management remains the initial choice of treatment. In case of symptomatic or large cysts (>10mm), surgical excision is indicated. This case represents an extremely rare scenario, but it is important to keep epididymal cysts into consideration when dealing with scrotal masses.

REFERENCES

1. Rioja, J., Sánchez-Margallo, F.M., Usón, J. and Rioja, L.A. Adult hydrocele and spermatocele. BJU International. 2011; 107: 1852-64. doi : 10.1111/j.1464-410X.2011.10353.x2.
2. Ushida H, Hayashida H, Kim CJ, Park KI, Okada Y. Bilateral synchronous multilocular epididymal cysts: a case report. Jpn J Urol. 1999; 90:692-5. doi: 10.5980/jpnjurol1989.90.692
3. Akin Y, Sarac M, Basara I, Yucel S, Kazez A. Bilateral epididymal cyst in 14-year-old boy: a case report . J Health Sci. 2014; 4:68-71. doi : 10.17532/jhsci.2014.150
4. Gupta S, Shinde S, Rathod V, Shinde RK. Asymptomatic Bilateral Giant Multilocular Epididymal Cyst in a Middle-Aged Patient. Cureus. 2022 May 4;14(5):e24722. doi: 10.7759/cureus.24722.
5. Woodward P, Schwab C, Sesterhenn I. From the Archives of the AFIP: Extratesticular Scrotal Masses: Radiologic-Pathologic Correlation. Radiographics. 2003; 23(1): 215-40. doi:10.1148/rg.231025133
6. Boscarelli A, Bellini T: Epididymal cyst in children . Eur J Pediatr. 2021; 180: 2723-9. doi : 10.1007/s00431-021-04080-5
7. O'Kelly, F., McAlpine, K., Abdeen, N., Keays, M. A., Guerra, L. A., & Leonard, M. P. The futility of continued surveillance of epididymal cysts: A study of the prevalence and clinico-demographics in pre- vs. post-pubertal boys. Canadian Urological Association Journal. 2019; 13(12): E398–403.
8. Arora BK, Arora R, Arora A: A randomised study of management modalities in epididymal cyst . Int Surg J. 2019; 6: 340- 4. doi :10.18203/2349-2902.isj20190379
9. Karaman A, Afşarlar CE, Arda N. Epididymal cyst: Not always a benign condition. Int J Urol. 2013; 20: 457-8. doi : 10.1111/j.1442-2042.2012.03152.x
10. Erikçi V, Hoşgör M, Yıldız M, et al.: Torsion of an epididymal cyst: a case report and review of the literature. Turk J Pediatr. 2013; 55: 659-6.

Laparoscopic Fundoplication: A New Hope for GERD Patients

Beyond Medication: Laparoscopic Fundoplication for Gastroesophageal Reflux Disease

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Gastroesophageal reflux disease (GERD) is a condition that occurs when the reflux of gastric contents into the esophagus, causing troublesome symptoms and potential complications such as heartburn or regurgitation (1). It is a highly prevalent disorder that is becoming more common, leading to a significant burden on healthcare and negatively impacting the quality of life of patients (2). If left untreated, GERD can give rise to serious complications which include reflux oesophagitis, bleeding from the oesophagus, narrowing of the lumen, and change in the nature of the lining which can sometimes give rise to oesophageal cancer (3,4).

Although proton pump inhibitors (PPIs) are the primary medical treatment for GERD, approximately 30% of patients with heartburn and even more individuals with regurgitation do not respond adequately to standard or high dosages of PPI therapy (1). In these instances, laparoscopic fundoplication is currently the exclusive recommended treatment modality to overcome PPI failures (1).

In this article, we will discuss the evidence surrounding the use of Laparoscopic fundoplication in patients with GERD.

LAPAROSCOPIC FUNDOPLICATION AND ITS APPROACHES

Fundoplication is the standard surgical treatment for GERD (1). The most widely used fundoplication is laparoscopic nissen fundoplication (LNF), but it is associated with a high incidence of troublesome dysphagia and gas-related symptoms, such as gas bloating, flatulence, and inability to belch (5,6). To address these issues, Partial fundoplications have been developed as alternatives for the Nissen fundoplication, with the aim of reducing the incidence of such post-fundoplication symptoms (5,6).
The most commonly used partial fundoplications are either the posterior 270° fundoplication (Toupet), where the stomach is wrapped behind the esophagus or the anterior 180° fundoplication, where the stomach is passed in front of the esophagus such as the 180-200° Watson or Dor wraps (5). The selection criteria for identifying individuals as potential candidates for surgical fundoplication are illustrated in Figure 1 (7).

EFFECTIVENESS OF LAPAROSCOPIC FUNDOPLICATION FOR GERD

In recent times, the implementation of laparoscopic techniques has led to a reduction in perioperative complications and a smoother postoperative recovery, while ensuring effective control of GERD (8). These advancements have the potential to significantly increase the likelihood of patients being referred for this procedure (8).

To further evaluate the efficacy of LNF, a randomized controlled trial was conducted comparing LNF (n = 52) with proton pump inhibitors (PPIs) (n = 52) for the treatment of GERD (9,10). The primary measure of interest was the frequency of GERD symptoms. The results showed that patients who underwent the surgical procedure experienced significant improvements in their symptoms, as well as better pH control and an overall enhancement in their quality-of-life health index after one year, in comparison to the group receiving medical therapy (9). At the end of one year, the medical group did not show any significant changes in their overall GERD symptom score, whereas the surgical group demonstrated noticeable improvement (9,10).

Within the medical group, fourteen patients experienced a relapse of symptoms, which required adjusting the dosage of the PPI (9). On the other hand, none of the surgical patients required any additional treatment for symptom control (9). These findings suggest PPI-responsive GERD patients are highly suitable candidates for surgical intervention (9). Furthermore, it is expected that these patients would experience improved control of their symptoms after undergoing surgery, as observed at the one-year follow-up (9).

A study conducted by Mahon et al., 2005 compared laparoscopic Nissen fundoplication with PPIs for treatment of GERD (11). The quality of life and the Gastrointestinal Symptom Rating Scale were assessed at 3 and 12 months after treatment for both groups (11).

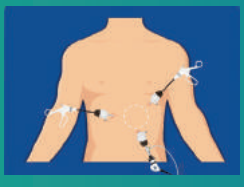
After three months, the LNF group exhibited an improvement in lower esophageal sphincter pressure (6.3 to 17.2 mmHg), while the PPI group experienced no change (8.1 and 7.9 mmHg before and after treatment, respectively) ($P < 0.001$) (11). The LNF group also experienced improvements in gastrointestinal symptoms and general well-being scores from 31.7 to 37.0 and 95.4 to 106.2 at 12 months, while the PPI group had minor changes (34.3 to 35.0 and 98.5 to 100.4, respectively) (11). The differences in these scores were significant between the two groups at 12 months ($P = 0{\cdot}003$) (11). After 3 months, LNF treatment results in significantly reduced acid exposure in the lower esophagus compared to PPI therapy (11). Furthermore, after 12 months, LNF demonstrates significantly greater improvements in both gastrointestinal symptoms and general well-being compared to PPI treatment (11).

Who is Suitable for Laparoscopic Fundoplication?

- Adverse reactions resulting from medical treatment
- Inadequate adherence to medical treatment
- Worries or desire to discontinue long-tern medical treatment
- Experiencing Symptoms due to a significant hiatal hernia, specifically reguritation
- Lack of interest in medical therapy
- Abnormal pH test while on the maximum dosage of PPI
- Symtoms are associated with nonacid reflux while on maximum dosage of PPI

Figure 1. Suitable candidates for laparoscopic fundoplication (7).

Advantages of Laparoscopic Fundoplication



1. Control reflux over long periods of time
2. Shorter hospital stays
3. Lesser post-operative pain
4. Lower risk of postoperative wound infections

Figure 2. Benefits of laparoscopic fundoplication in patients with GERD (12).

Key Highlights

- Gastroesophageal reflux disease (GERD) is a prevalent condition that can lead to troublesome symtoms and ptential complications if left untreated (1).
- Proton pump inhibitors (PPIs) are the primary medical treatment for GERD, but a significant number of patients do not respond adequately to this therapy (1).
- Laparoscopic fundoplication is recommended for patients who do not respond to PPI therapy and experience symtoms such as heartburn or regurgitation (1).
- Studies have shown that laparoscopic fundoplication is effective in improving GERD symptoms, pH control, and quality of life compared to medical therapy (9). It Also reduces the need for additional treatment and provides long-term reflux control (9).

REFERENCES

1. Frazzoni M, Piccoli M, Conigliaro R, Frazzoni L, Melotti G. Laparoscopic fundoplication for gastroesophageal reflux disease. World Journal of Gastroenterology: WJG. 2014 Oct 10;20(39):14272.
2. Hoffsten J, Forsell Y. Laparoscopic Nissen fundoplication versus 90° and 180° fundoplication for gastroesophageal reflux disease. Eur Surg. 2022 Apr 1;54(2):66–73.
3. Garg SK, Gurusamy KS. Laparoscopic fundoplication surgery versus medical management for gastro-oesophageal reflux disease (GORD) in adults. The Cochrane Database of Systematic Reviews [Internet]. 2015 Nov [cited 2023 Jun 19];2015(11). Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8278567/
4. Clarrett DM, Hachem C. Gastroesophageal Reflux Disease (GERD). Missouri Medicine. 2018 Jun;115(3):214.
5. Bramhall SR, Mourad MM. Wrap choice during fundoplication. World Journal of Gastroenterology. 2019 Dec 12;25(48):6876.
6. Roks DJ, Koetje JH, Oor JE, Broeders JA, Nieuwenhuijs VB, Hazebroek EJ. Randomized clinical trial of 270° posterior versus 180° anterior partial laparoscopic fundoplication for gastro-oesophageal reflux disease. Br J Surg. 2017 May 18;104(7):843–51.
7. Sandhu DS, Fass R. Current Trends in the Management of Gastroesophageal Reflux Disease. Gut and Liver. 2018 Jan;12(1):7.
8. Lundell L, Bell M, Ruth M. Systematic review: Laparoscopic fundoplication for gastroesophageal reflux disease in partial responders to proton pump inhibitors. World Journal of Gastroenterology: WJG. 2014 Jan 1;20(3):804.
9. Anvari M, Allen C, Marshall J, Armstrong D, Goeree R, Ungar W, et al. A Randomized Controlled Trial of Laparoscopic Nissen Fundoplication Versus Proton Pump Inhibitors for Treatment of Patients With Chronic Gastroesophageal Reflux Disease: One-Year Follow-Up. Surgical Innovation [Internet]. 2006 Dec 1 [cited 2023 Jun 22]; Available from: https://journals.sagepub.com/doi/10.1177/1553350606296389?url_ver=Z39.88-2003&rfr_id=ori%3Arid%3Acrossref.org&rfr_dat=cr_pub++0pubmed
10. Singhal V, Khaitan L. Gastroesophageal Reflux Disease: Diagnosis and Patient Selection. The Indian Journal of Surgery. 2014 Dec;76(6):453.
11. Mahon D, Rhodes M, Decadt B, Hindmarsh A, Lowndes R, Beckingham I, et al. Randomized clinical trial of laparoscopic Nissen fundoplication compared with proton-pump inhibitors for treatment of chronic gastro-oesophageal reflux. Br J Surg. 2005 May 23;92(6):695–9.
12. Moore M, Afaneh C, Benhuri D, Antonacci C, Abelson J, Zarnegar R. Gastroesophageal reflux disease: A review of surgical decision making. World Journal of Gastrointestinal Surgery. 2016 Jan 1;8(1):77.

ERASE OFF YOUR TEMPERATURE

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Dr. Manish Srinivas Murthy
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Retinopathy of Prematurity

Stage 3 Retinopathy of Prematurity (ROP) treated successfully with Peripheral Laser Photocoagulation on both eyes at Aster Hospital, Al Qusais

PRESENTATION

- Extreme preterm baby born at 25+6 weeks of normal vaginal delivery, was on regular follow-up for Retinopathy of Prematurity (ROP) monitoring
- Extremely low birth weight – 918 gms
- Cried at birth with foetal heart rate – 120/min and Apgar score – 8, 9
- Was in the NICU for 84 days, respiratory failure, hypercarbia, hypocalcemia, 3 mm PDA (Patent Ductus Arteriosus) at birth with haemodynamically significant shunt and small PFO (Patent Foramen Ovale), Anaemia, UTI, and Sepsis
- Child had sustained apnoea and cardiac arrest, requiring CPR during ophthalmic dilatation and examination in the NICU
- At 4 months 25 days of age, the baby was diagnosed to have anterior zone 2 – posterior zone 3 – stage 3 ROP Plus Disease
- Admitted with –
  - Anaemia of prematurity
  - Retinopathy of prematurity

FINDINGS

During Examination:

- Free and full ocular movements
- Anterior segment – Within normal limits
- Fundus – anterior zone 2 – posterior zone 3 stage 3 ROP Plus disease in both the eyes

MANAGEMENT

After the pre-anaesthesia evaluation, the patient was planned for Peripheral Laser Photocoagulation with IDO (Indirect) Laser the next day. The child was 4 months 25 days and weighed 3.1 kg. No fever, URI and was feeding well.

Anaesthesia Management:

The baby was shifted to the operation theatre on the day of the procedure, and laser photocoagulation was done under general anaesthesia:

- The baby was connected with standard anaesthesia monitors like SpO2, ECG and NIBP. 26G IV cannula secured in the left hand.
- The child was induced with Inj Glycopyrrolate (0.05 mg) + Inj Ketamine (6 mg) IV + Inj Atracurium (2 mg) IV.
- The baby was intubated with 3.0 ETT and was maintained with an Oxygen + Air mixture with Sevoflurane @ FiO2 of 40%.
- After initiating Sevoflurane, the baby started desaturating from 99% to 80%. Fio2 was increased to 100%, but the SpO2 was 75-80%. Sevoflurane was stopped, and a fluid bolus of 10 ml and Inj Phenylephrine bolus (total of 6mcg) were given.
- After the Phenylephrine bolus saturation improved to 100% and the FiO2 was reduced slowly to 40%. Anaesthesia was maintained with Inj ketamine (2 mg) IV every 15 mins (total 4 mg).
- The procedure lasted for about 40 mins.

Ophthalmology Management:

- Right Eye – 1231 laser spots were applied.
- Left Eye – 1540 laser spots were applied.
- Antibiotics and lubricants were applied after the laser.
- At the end of the procedure, the baby was reversed, extubated, and monitored till the baby was awake. The baby was breathing well, had an oxygen saturation of 97-99%, and was transferred to the NICU for further observation.

POST PROCEDURE

The baby tolerated the procedure well and was breathing well before shifting to the NICU under the paediatrician's care. He was in a stable condition on discharge

DISCUSSION

Retinopathy of Prematurity (ROP) is a disorder of the retina among premature babies. Babies born less than 31 weeks of gestation or less than 1500 grams at birth are mainly at risk of developing ROP.

Hence it is necessary to monitor/screen such babies who are at risk of developing ROP. Babies born less than 31 weeks of gestation should be screened at 4 weeks postnatal age (PNA) or at 31-32 weeks postmenstrual age (PMA) – whichever is later. Babies born from 31 weeks should be screened at 36 weeks PMA or 4 weeks PNA – whichever is sooner.

ROP is classified mainly into Stages and Zones comprising 5 stages and 3 zones, with Stage 5 being the advanced disease and Zone 1 being the least developed retina and vasculature.

Management may include observation, intravitreal injection of Anti-VEGF or Laser photocoagulation depending on the stage and zone of retinopathy.

Stages 1-2 are usually observed irrespective of the Zone of development.
Stage 3 disease is usually treated, especially if it is in Zone 1.
Stage 4 and above mostly require surgical intervention.

ROP treatment is considered urgent if the baby has Aggressive Retinopathy of Prematurity (A-ROP) and PLUS disease, which tend to progress rapidly and cause irreversible and permanent vision loss.

Laser therapy is known to be stressful and painful for neonates. It is accepted that a premature baby can feel the pain, and repeated painful stimuli can result in bradycardia and apneic episodes leading to significant morbidity and mortality.

These premature babies' significant concerns are prematurity-related morbidities like respiratory distress, electrolyte abnormalities, intraventricular haemorrhages, congenital anomalies, mainly cardiac defects (PDA, PFO), necrotizing enterocolitis, and anaemia.

Multiple anaesthetic techniques have been tried to examine and treat the ROP in these babies. Ophthalmic dilatation and assessment of the extent of the disease are usually done under topical anaesthesia. This technique carries a high risk of bradycardia and apnoea, as happened in our patient. Topical anaesthesia is inadequate for Laser ablation of the retina as it is very painful and needs either IV sedation or general anaesthesia (GA). General anaesthesia has its own risks and benefits. The benefits are mainly painless procedures, and an immobile child provides excellent conditions to perform the procedure and target the right areas of the retina with the laser and avoid unwanted ablation of the normal retinal tissue. The risks are primarily due to prematurity and associated comorbidities, as mentioned before. The other challenges include their susceptibility to hypothermia, complex cardiac physiology, immature neurological and respiratory system, difficulty securing the airway, other associated congenital anomalies and, more importantly, an immature metabolic system leading to unpredictable pharmacokinetics of the medications administered during anaesthesia.

Of all the challenges mentioned above, the most important is the risk of apnoea during sedation and after extubation under GA. The risk of post-procedure apnea can last up to 24 hours, and the baby needs closed monitoring and hence warrants NICU admission after the procedure.

REFERENCES

1. Retinopathy of prematurity : Therapeutic strategies based on patho physiology. 2016;109(4):369-76
2. Updates in treatment of retinopathy of prematurity.2022 Jan;39(1):22-30
3. Retinopathy of prematurity: a review of epidemiology and current treatment strategies. 2022 Mar;65(3):115-126
4. Anand KJ, Carr DB. The neuroanatomy, neurophysiology and neurochemistry of pain, stress and analgesia in newborns and children. Pediatr Clin N Am. 1989;36:795–822.
5. Anand KJ. Clinical importance of pain and stress in preterm neonates. Biol Neonate. 1998;73:1–9.
6. Chaudhari S, Patwardhan V, Vaidya U, Kadam S, Kamat A. Retinopathy of prematurity in a tertiary care center--incidence, risk factors and outcome. Indian Pediatr. 2009;46:219-224.
7. Kinouchi K. Anaesthetic considerations for the management of very low and extremely low birth weight infants. Best Pract Res Clin Anaesthesiol. 2004;18:273-290.
8. Ferrer Novella C, González Viejo I, Oro Fraile J, Mayoral López F, DiesteMarcial M. New anaesthetic technique in diode laser treatment of retinopathy of prematurity. An Pediatr (Barc). 2008;68:576-580.
9. Lyon F, Dabbs T, O'Meara M. Ketamine sedation during the treatment of retinopathy of prematurity. Eye (Lond). 2008;22:684-686.

Psoriasis

Addressing Psoriasis Associated Comorbidities and Modifiable Lifestyle Choices

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INTRODUCTION:

Psoriasis is a chronic immune-mediated inflammatory condition that causes keratinocyte proliferation and well-defined red plaques with silvery-white scales (1). It can affect any part of the skin, including the nails and other integumentary system organs, but it most frequently affects the scalp, presacral region, elbows, knees, and knees (1).

It has an incidence rate of 57.8 per 100,000 people as estimated by the Global Burden of Disease and presents equally in males and females (1). The pathogenesis can be attributed to genetic component - HLA-Cw6 and a positive family history, immune dysfunction as well as other factors like previous infections, trauma, medications and psychological stress (1).

Although skin is the most prominent manifestation of psoriasis, its recognition as a multisystemic chronic inflammatory disorder is essential for the early identification of comorbidities (1,2). Some common comorbidities associated with psoriasis are: cardiovascular diseases, obesity, metabolic disorders, malignancy, dyslipidemia, diabetes and severely compromised quality of life (1).

This article discusses some of the commonly occurring comorbidities in psoriasis and suggestive lifestyle modifications that will be beneficial for managing the condition.

COMORBIDITIES OCCURRING WITH PSORIASIS:

As psoriasis is a chronic disease, these frequently occurring comorbidities should be identified early for timely treatment and prevention (1).

CARDIOVASCULAR DISEASES:

Due to common genetic factors and inflammatory pathways, insulin resistance, angiogenesis, oxidative stress, hypercoagulability, and vascular inflammation, psoriasis poses a risk for cardiovascular diseases (CVD) (1). A population-based study using The Health Improvement Network (THIN) reported 9069/10474 patient's with psoriasis 1322 (15.1%) patients had a diagnosis of hypertension (3).

A higher prevalence of hyperlipidemia was observed in psoriatic individuals compared to patients with no psoriasis (4). A case-controlled study between 222 psoriatic patients and 445 non-psoriatic patients reported a 44.1% higher prevalence of hyperlipidemia in psoriatic individuals compared to 26.3% in individuals without psoriasis (4). Lipoproteins cause endothelial dysfunction, platelet aggregation, hinders the tissue factor pathway inhibitor, and phospholipid oxidation, which may increase CVD risk (4).

The cytokines, interleukin 1 (IL-1), IL-6, and TNF-α involved in psoriasis inhibit the lipoprotein lipase activity which reduces the clearance of triglycerides (4). A low level apoA1 in the inflammatory tissues might reduce the circulating HDL and thus increase the risk of CVD in psoriatic patients (4). A case-controlled study, psoriatic patients' levels of apoA1 were significantly lower, and there was a significant correlation between apoA1 and HDL (4).

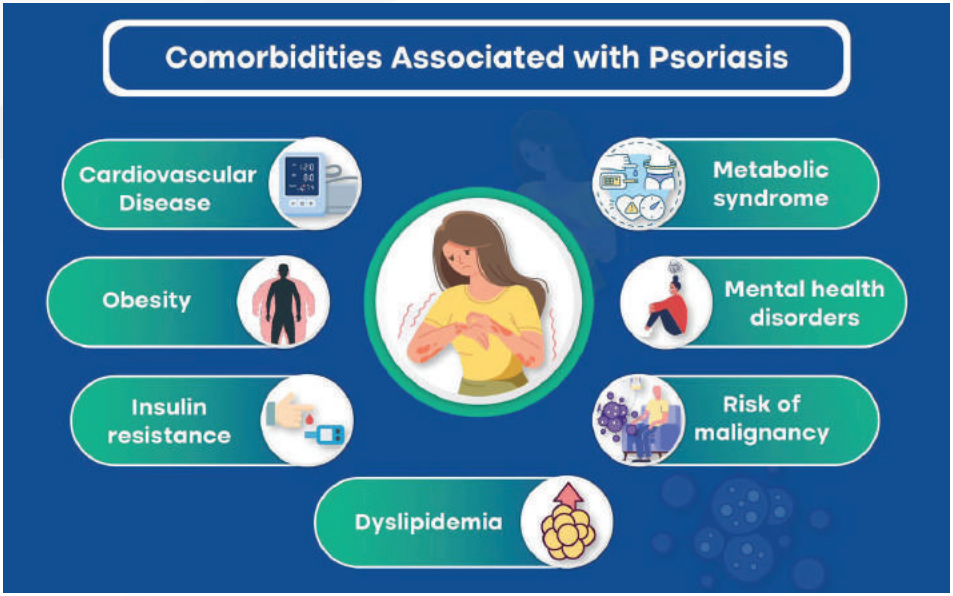


Figure 1: Common Comorbidities associated with psoriasis (1-3,7,8)

METABOLIC DISORDERS:

Metabolic syndrome (MetS) is the most common comorbidity of psoriasis, MetS is a cluster of cardiovascular risk factors, specifically obesity, hypertension, dyslipidemia, and insulin resistance, and is associated with chronic inflammation (5). The underlying pathophysiology which links psoriasis to MetS may be the overlapping inflammatory pathways and genetic predisposition (6). IL-17 plays a critical role in inflammation, insulin resistance (IR), and type 2 diabetes indicating its mediating effect on MetS (6). It stimulates a vascular inflammatory response and plays a role in angiotensin II-induced hypertension and vascular dysfunction (6).

Leptin and adipocytes are adipokines regulated by adiponectin that play a role in lipid metabolism (3). Their secretion appears to be reduced in psoriasis which can contribute to IR, CVD and T2D (3). Moreover, increased oxidative stress in adipocytes leads to lipid peroxidation DNA damage, and cellular dysfunction, eventually leading to cell death (3). A study between patients with psoriasis-MetS and psoriasis demonstrated elevated levels of the inflammatory marker calprotectin compared to control (7). Increased ROS production further aggravates psoriasis (7).

RISK OF MALIGNANCY:

Psoriasis is known to increase the risk of cancer in patients with psoriatic cancer, the chronic inflammatory, hyper proliferative nature of psoriasis, immunosuppressive treatment, UV therapies may contribute towards the malignancy (3).

A study identified 32,241 new cases of cancer in the control group and 6289 new cases in the overall psoriasis group, of which 5490 were in the mild psoriasis group and 2186 in the moderate-to-severe psoriasis group (3). The moderate-to-severe psoriasis group had a statistically significant higher risk of any lymphoma (HR, 1.69; 95% CI, 1.12-2.55); cutaneous T-cell lymphoma (CTCL) (HR, 8.86; 95% CI, 3.53-22.20); lung cancer (HR, 1.73; 95% CI, 1.26-2.39); and NMSC (HR, 1.40; 95% CI, 1.23-1.60) compared to patients without psoriasis (3). There are contrary opinions about increase in the risk of bone and cartilage cancers, non-Hodgkin lymphoma, and non-melanoma skin cancer due to systemic therapy (3).

A study estimating the risk of malignancy in patients undergoing different treatment modalities showed no significant difference between the systemics and non-systemics cohorts (P=0.450 for LRT) (8). Similarly, phototherapy (aHR [95% CI], 1.13 [1.00–1.27]), non-biologic systemics (1.05 [0.97–1.13]), and biologics (1.24 [0.84–1.83]) cohorts were not associated with a significantly increased risk of malignancy (8).

MENTAL HEALTH DISEASES:

Psoriasis is associated with several comorbid conditions of diabetes, hypertension, obesity and metabolic syndrome (6). These comorbidities in turn are associated with depression (1). Depression impairs the quality of life and may have major socioeconomic consequences (9). The prevalence of depression in patients with psoriasis was 11.52% while the prevalence was 7.73% in the general population (9). The prevalence was equal between males and females (9).

A separate population-based study investigated the risk and time to onset of mental health disorders in patients with psoriasis (10). The study included 12762 patients with psoriasis (10). The risk of depressive episodes, anxiety disorders, somatoform disorders, neurotic disorders, and nonorganic sleep disorders were 2.19, 2.92, 2.62, 2.66, and 2.58 times higher in patients with psoriasis than in control patients (10).

The risk and onset of mental health disorders in psoriasis patients were examined in a different population-based study (10). The study had 12762 psoriasis patients in it (10). Patients with psoriasis had a 2.19, 2.92, 2.62, 2.66, and 2.58 times higher risk of depressive episodes, anxiety disorders, somatoform disorders, neurotic disorders, and nonorganic sleep disorders than control patients (10).

The analysis showed mental health disorders were known to occur within 2-3 months after psoriasis diagnosis, with a shorter time for onset in men compared to women (10).

LIFESTYLE MANAGEMENT FOR PSORIASIS ASSOCIATED COMORBIDITIES

Psoriasis is often viewed as an isolated skin condition rather than a complex condition requiring lifestyle choices (11). Patients with moderate to severe psoriasis are vulnerable to suboptimal lifestyles which negatively affects the topical condition (11).

Improving the lifestyle of patients with psoriasis involves various aspects such as diet, smoking, alcohol, and relaxation techniques (11). Among these, physical activity is a beneficial starting point as it has a positive impact on psoriasis itself and may help alleviate associated cardiovascular and metabolic conditions as well as improve the patient's quality of life (11).

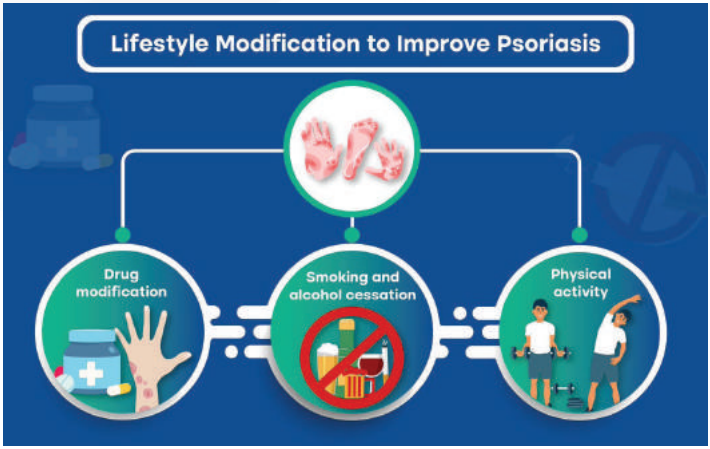


Figure 2: Lifestyle changes to improve the comorbidities (12–14).

PATIENT RELATED FACTORS:

Koebner phenomenon is the new occurrence of skin lesions in uninvolved areas due to mechanical stress (15). Ultraviolet light, radiotherapy and even light dermal trauma can trigger new lesions in patients (15). Negative emotions of anxiety can worsen diseases severity and itch (15). An itch-scratch cycle can further exacerbate the psoriasis (15).

DRUG MODIFICATIONS IN METABOLIC SYNDROME:

Treatment of psoriasis can negatively affect metabolic comorbidities, especially in the case of continuous and prolonged use (12). Psoriasis and associated comorbidities can reciprocally fuel each other leading to exacerbations of the condition (12). Due to the increased risk of liver fibrosis, methotrexate for psoriasis should only be prescribed with caution in cases of obesity, diabetes, NAFLD, and heavy alcohol consumption (12). A study evaluating high and low-dose methotrexate demonstrated lower dose methotrexate had a protective effect on CVD (9).

Cyclosporine has been shown to increase insulin resistance, cause dyslipidemia and hyperuricemia by interfering with the metabolism of fatty acids (12). Cyclosporine and statins, which are frequently used to treat hypercholesterolemia, may interact with each other that could cause rhabdomyolysis (12). Drug interaction between cyclosporine and statins, which are commonly used for hypercholesterolemia, could potentially induce rhabdomyolysis (12). Hence cyclosporine treatment should be used only for a short while and be substituted on skin improvement (9).

In psoriasis patients taking TNF-alpha antagonists, weight changes are primarily brought on by increases in fat mass (12). A weight-loss intervention should be incorporated into such treatments because the fat acts as an endocrine organ and secretes adiponectin and leptin, which are connected to inflammation, altered glucose metabolism, and changes in the inner lining of blood vessels (13).

MANAGING SMOKING AND ALCOHOL CONSUMPTION:

Smoking increases the pathogenesis of psoriasis by producing free radicals that activate the mitogen-activated protein kinase (MAPK), nuclear factor-kappa (NF-k), and Janus kinases-signal transducer and activator of transcription (JAK-STAT) pathways, resulting in the formation of reactive oxygen species (ROS) and decreased expression of antioxidant-protective genes, which leads to skin damage (14).

Alcohol decreases the efficacy and increases the toxicity of systemic antipsoriatic treatments (14). It stimulates TNF-α, lymphocyte and keratinocyte proliferation which are related to skin barrier disruption (14).

The relationship between psoriasis and comorbidities can be accounted by the shared genetic background, the systemic effects of chronic inflammation, insulin resistance, and unhealthy lifestyle like heavy drinking and smoking, over eating, and being sedentary, and drug interactions that are common in psoriasis (12). These need to be managed for improving the patients quality of life (12).

Key Highlights

- The treatment of psoriasis in the presence of comorbidities should be tailored to meet the individual needs (11).
- A combined effort of low-calorie diet, physical activity and treatment interventions can improve the patient's response towards systemic therapy as well as improve the comorbidities (11).
- Psoriasis is not restricted to a skin disease affecting the skin and joints but is also associated with various cardiovascular and metabolic disorders (1).
  A multi-faceted treatment approach should be considered (14).

REFERENCES

1. Branisteanu DE, Pirvulescu RA, Spinu AE, Porumb EA, Cojocaru M, Nicolescu AC, et al. Metabolic comorbidities of psoriasis (Review). Exp Ther Med [Internet]. 2022 Dec 28 [cited 2023 Jun 19];23(2). Available from: /pmc/articles/PMC8764894/
2. Damiani G, Bragazzi NL, Karimkhani Aksut C, Wu D, Alicandro G, McGonagle D, et al. The Global, Regional, and National Burden of Psoriasis: Results and Insights From the Global Burden of Disease 2019 Study. Front Med [Internet]. 2021 Dec 16 [cited 2023 Jul 17];8. Available from: /pmc/articles/PMC8716585/
3. Fuxench ZCC, Shin DB, Beatty AO, Gelfand JM. The Risk of Cancer in Patients With Psoriasis: A Population-Based Cohort Study in the Health Improvement Network. JAMA dermatology [Internet]. 2016 Mar 1 [cited 2023 Jun 22];152(3):282. Available from: /pmc/articles/PMC5273859/
4. Miao C, Li J, Li Y, Zhang X. Obesity and dyslipidemia in patients with psoriasis: A case–control study. Medicine (Baltimore) [Internet]. 2019 Aug 1 [cited 2023 Jun 20];98(31). Available from: /pmc/articles/PMC6709019/
5. Gelfand JM, Yeung H. Personal non-commercial use only. J Rheumatol Suppl [Internet]. 2012 [cited 2023 Jun 21];39:24–8. Available from: www.jrheum.org
6. Hao Y, Zhu YJ, Zou S, Zhou P, Hu YW, Zhao QX, et al. Metabolic Syndrome and Psoriasis: Mechanisms and Future Directions. Front Immunol. 2021 Jul 23;12:711060.
7. Holmannova D, Borska L, Andrys C, Borsky P, Kremlacek J, Hamakova K, et al. The Impact of Psoriasis and Metabolic Syndrome on the Systemic Inflammation and Oxidative Damage to Nucleic Acids. J Immunol Res [Internet]. 2020 [cited 2023 Jun 22];2020. Available from: /pmc/articles/PMC7256681/
8. Hong JY, Ahn J, Won S, Kim SM, Cho YA, Kim CY, et al. Risk of malignancy in patients with psoriasis according to treatment modalities in Korea: a nationwide cohort study. Sci Reports 2022 121 [Internet]. 2022 Nov 30 [cited 2023 Jun 23];12(1):1–9. Available from: https://www.nature.com/articles/s41598-022-23518-w
9. Hu SC-S, Lan C-CE. Psoriasis and Cardiovascular Comorbidities: Focusing on Severe Vascular Events, Cardiovascular Risk Factors and Implications for Treatment. Int J Mol Sci [Internet]. 2017 Oct 21 [cited 2023 Jun 24];18(10):2211. Available from: /pmc/articles/PMC5666891/
10. Bang CH, Yoon JW, Chun JH, Han JH, Park YM, Lee SJ, et al. Association of Psoriasis With Mental Health Disorders in South Korea. JAMA Dermatology [Internet]. 2019 Jun 1 [cited 2023 Jun 24];155(6):747–9. Available from: https://jamanetwork.com/journals/jamadermatology/fullarticle/2732603
11. Schmitt-Egenolf M. Physical activity and lifestyle improvement in the management of psoriasis. Br J Dermatol [Internet]. 2016 Sep [cited 2023 Jun 24];175(3):452–3. Available from: https://www.researchgate.net/publication/308184148_Physical_activity_and_lifestyle_improvement_in_the_management_of_psoriasis
12. Gisondi P, Galvan A, Idolazzi L, Girolomoni G. Management of moderate to severe psoriasis in patients with metabolic comorbidities. Front Med. 2015 Jan 21;2(JAN):119343.
13. Ko SH, Chi CC, Yeh ML, Wang SH, Tsai YS, Hsu MY. Lifestyle changes for treating psoriasis. Cochrane Database Syst Rev [Internet]. 2019 Jul 16 [cited 2023 Jun 24];2019(7). Available from: https://www.cochranelibrary.com/cdsr/doi/10.1002/14651858.CD011972.pub2/full
14. Musumeci ML, Nasca MR, Boscaglia S, Micali G. The role of lifestyle and nutrition in psoriasis: Current status of knowledge and interventions. Dermatol Ther [Internet]. 2022 Sep 1 [cited 2023 Jun 24];35(9):e15685. Available from: https://onlinelibrary.wiley.com/doi/full/10.1111/dth.15685
15. Kamiya K, Kishimoto M, Sugai J, Komine M, Ohtsuki M. Risk Factors for the Development of Psoriasis. Int J Mol Sci 2019, Vol 20, Page 4347 [Internet]. 2019 Sep 5 [cited 2023 Jul 17];20(18):4347. Available from: https://www.mdpi.com/1422-0067/20/18/4347/htm

Arrhythmogenic Right Ventricular Cardiomyopathy (ARVC)

Sudden Cardiac Arrest (SCA) in a young mother revived successfully at Aster Hospital Sharjah

ARVC – an under-recognised cause of SCD (Sudden Cardiac Death) in Young Population

Dr. Yogeeswari Vellore Satyanarayanan
Cardiology (Specialist)

PRESENTATION

- 31 year old female
- No known cardiac comorbidities
- Mother of 2 children – normal deliveries – LCB (Last Childbirth) – 6 months before
- Uneventful antenatal and perinatal period, except for occasional palpitation
- History of recurrent palpitation with near syncope while in recreational water park – paramedic mentioned patient had high heart rate, managed symptomatically.
- While on the way back home, patient sustained cardiac arrest and was admitted to the Emergency Room in an unresponsive state with – OOHA (Out of Hospital Cardiac Arrest)
- ACLS (Advanced Cardiac Life Support) initiated – initial rhythm identified on the monitor – narrow QRS Tachycardia
- Planned DC version – meanwhile change of rhythm from narrow to wide QRS tachycardia observed – DC verted – ROSC (Return of Spontaneous Circulation) achieved after 1 cycle of CPR and 1 shock

Wide QRS Tachycardia

- Post reversion ECG:
  - Predominant sinus rhythm
  - Frequent polymorphic VPCs (Ventricular Premature Complexes)
  - Recurrent ill-sustained VT (Ventricular Tachycardia)
  - Prolonged QTc / no manifest pre-excitation

Post Reversion ECG with Prolonged QTc

- History of macrolide antibiotic (Azithromycin) for 5 days from outside GP for cough and mild fever

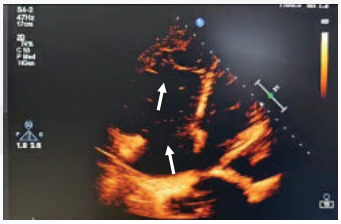
EXAMINATION (BEDSIDE SCREENING ECHO POST-ROSC)

Echocardiogram Findings:

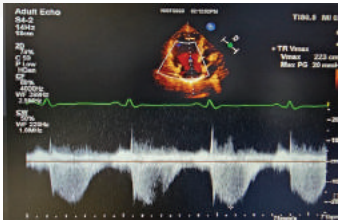
- Gross RA/RV dilatation
- Dilated RVOT (Right Ventricular Outflow Tract)
- No PS (Pulmonary Stenosis) or PR (Pulmonic Regurgitation)
- Moderate TR, TR gradient – 22mmHg – possibly low pressure TR
- RV dysfunction with no clot
- Adequate LV function

Contrast Echo with Agitated Normal Saline showed:

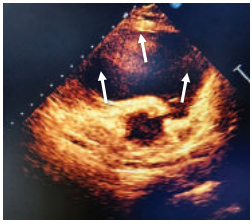
- No evidence of intracardiac/extracardiac intrapulmonary shunts



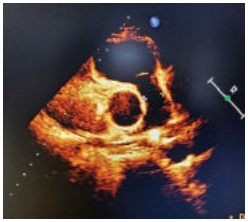
Dilated RA/RV



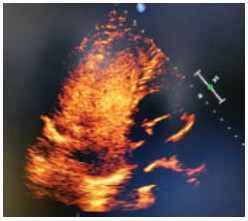
Low pressure TR



Dilated RVOT



Dilated RVOT/Normal PA Dimensions



Negative Contrast Study

IMPRESSION

Young patient with:

- No known cardiac comorbidities or family history
- Tolerated her pregnancy few months before
- Sudden onset of symptoms
- S/p (Status-post) resuscitated cardiac arrest with alternating narrow and wide QRS tachyarrhythmia
- Gross RA/RV dilatation

The following differentials were entertained:

1. **Pulmonary Embolism:** CT Pulmonary Angiography showed no evidence of PE, normal PA dimensions, dilated RV, bilateral consolidation.
2. **GUCH (ASD) / Eisenmenger:** Contrast study with agitated saline showed no evidence of intracardiac/extracardiac intrapulmonary shunt.

3. **Pulmonary Hypertension:** The patient had low pressure TR (Tricuspid Regurgitation). Both Eisenmenger and pulmonary hypertension appear less likely as she tolerated her pregnancy well just 6 months prior.
4. **RV Cardiomyopathy:** Appears more likely and also as evidenced by sequential ECGs showing Epsilon waves, low pressure TR with normal PA dimensions.

Epsilon Waves

MANAGEMENT

Arrhythmogenic Right Ventricular Cardiomyopathy (ARVC) was diagnosed (as per Task Force Criteria); treatment started with:

- Parenteral potassium correction (ser potassium 3.5 with prolonged QTc – 480 ms) and 1 dose of parenteral magnesium were given, aiming to keep "high normal" potassium and magnesium levels.
- Initiated on Antiarrhythmics (Metoprolol and oral Cordarone), to which the patient responded.
- Bilateral pneumonia was treated with imipenem and doxycycline.
- Thrombocytopenia with giant platelets on the peripheral smear was observed; follow-up smear showed normal results and platelets normalized - possibility of sepsis induced thrombocytopenia was considered.
- Hypothyroidism was newly diagnosed and initiated on Eltroxin.
- Patient had ?Malar rash with ANA positivity – suggestive of SLE (Systemic Lupus Erythematosus) – however, ANA profile was negative – advised follow up on the same.

POST DISCHARGE

- The patient was discharged in a haemodynamically stable condition.
- The patient was placed on a 7-day Holter Assessment to assess the safety of discharge.
- She underwent early AICD (Automatic implantable Cardioverter Defibrillator implantation (once she completely recovered from pneumonia and pan cultures – negative).

FINAL DIAGNOSIS AND MANAGEMENT

- Arrhythmogenic Right Ventricular Cardiomyopathy - Resuscitated OHCA
- Narrow QRS Tachycardia on presentation – Atrial Tachycardia
- Wide QRS Tachycardia of LBBB morphology – VT of RVOT origin
- Trigger:
  - Macrolide antibiotics/hypokalemia – prolong QTc Exertional
  - Recreational activity
- S/p AICD implantation + anti arrhythmics

DISCUSSION

ARVC is an essential cause of sudden cardiac death in young. They can commonly present with palpitation, syncope, as SCD/A (sudden cardiac death/arrest) and rarely with right heart failure.

It is usually easier to suspect/diagnose ARVC if there is an index case in the family. However, in our case, the patient was the index case - genetic analysis was done to further risk stratify and prognosticate her. Her siblings and kids were screened and advised for follow-up scans as the disease usually manifests in the 3rd – 4th decade.

Atrial arrhythmias are usually well tolerated, especially in young people. However, if they present with haemodynamic instability like in our patient, underlying structural heart disease has to be ruled out. Unrecognised Structural heart diseases are one of the important causes of Sudden Cardiac Death in young/athletes. Isolated LV involvement / BV involvement has also been reported.

It was possibly the macrolide antibiotic that triggered the entire sequence of events as her QTc was prolonged. Drugs which prolong QTc are to be carefully used in such patients. Electrolyte imbalances have to be promptly identified and treated.

Physical activity is well known to aggravate arrhythmias in patients with ARVC. Her undue exertion during her recreational activities had triggered arrhythmias in addition. Exercise tends to strain the heart more and trigger arrhythmias, so restricting physical activity is mandatorily advised.

Apparently, pregnancy is well tolerated in such patients, possibly why she was not symptomatic then. Avoiding triggers like caffeinated beverages, drugs that prolong QTc, and electrolyte imbalances are all crucial. AICD (Automatic implantable Cardioverter Defibrillator) is a class I indication.

EPS (Electrophysiological study) + RFA (Radio Frequency Ablation) is recommended in patients with repeated shocks despite AICD placement and antiarrhythmics.

Heart transplantation is the final option for patients with refractory arrhythmias/end-stage heart failure.

REFERENCES

1. Corrado D, Basso C, Buja G, et al. Right bundle branch block, right precordial st-segment elevation, and sudden death in young people. Circulation 2001; 103:710.
2. Saberniak J, Hasselberg NE, Borgquist R, et al. Vigorous physical activity impairs myocardial function in patients with arrhythmogenic right ventricular cardiomyopathy and in mutation positive family members. Eur J Heart Fail 2014; 16:1337.
3. Corrado D, Wichter T, Link MS, et al. Treatment of arrhythmogenic right ventricular cardiomyopathy/dysplasia: an international task force consensus statement. Eur Heart J 2015; 36:3227.
4. Al-Khatib SM, Stevenson WG, Ackerman MJ, et al. 2017 AHA/ACC/HRS guideline for management of patients with ventricular arrhythmias and the prevention of sudden cardiac death: Executive summary: A Report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines and the Heart Rhythm Society. Heart Rhythm 2018; 15:e190.
5. Wang W, James CA, Calkins H. Diagnostic and therapeutic strategies for arrhythmogenic right ventricular dysplasia/cardiomyopathy patient. Europace 2019; 21:9.
6. Towbin JA, McKenna WJ, Abrams DJ, et al. 2019 HRS expert consensus statement on evaluation, risk stratification, and management of arrhythmogenic cardiomyopathy. Heart Rhythm 2019; 16:e301.

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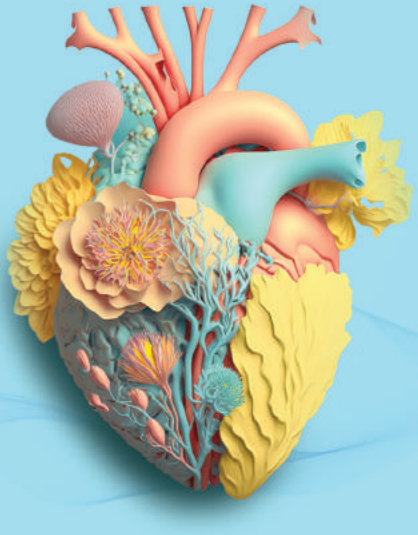

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