DOI: 10.7860/IJNMR/2022/53625.2336

Case Report

Paediatrics Section

Adrenal Haemorrhage Associated with Scrotal Swelling in a Neonate

RAKESH KUMAR[1], SANOBER WASIM[2], YASIR AHMED LONE[3], GIRISH GUPTA[4], TALHA REHMAN[5]

ABSTRACT

Acute scrotal swelling in a neonate is a serious condition that requires prompt evaluation. It is important to salvage the testis, if it is involved. Scrotal haematoma also results in scrotal swelling. Adrenal haemorrhage has been associated and may at times be the causation of scrotal swelling. This case report is about a neonate who developed scrotal swelling at 16 hours of life. It required scrotal exploration, because ultrasonography could not be done, and testicular torsion was a close differential diagnosis. Adrenal haemorrhage was found associated with it, emphasising the fact that adrenals should always be assessed if the scrotal haematoma is diagnosed. Scrotal swellings in a neonate should be considered an emergency and promptly worked up if facilities exist. A scrotal exploration may sometimes be required to rule out testicular torsion.

Keywords: Differential diagnosis, Testicular torsion, Ultrasonography

CASE REPORT

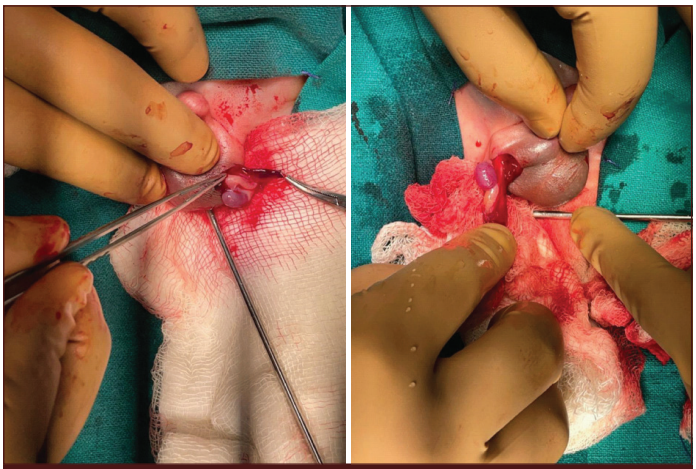
A male neonate was born to 22-year-old primigravida mother, via a lower segment caesarean section, at 35 weeks of gestation. The birth weight of the baby was 1270 grams. Antenatal history was suggestive of oligohydramnios, and severe intrauterine growth restriction. The baby did not cry after birth, and was resuscitated. The Appearance, Pulse, Grimace, Activity, and Respiration (APGAR) score was 6, 8 and 9 at 1, 5 and 10 minutes, respectively.

He developed respiratory distress soon after birth, was intubated and shifted to Neonatal Intensive Care Unit (NICU). He was nursed under a radiant warmer, mechanical ventilation {Mode Pressure Support Ventilation (PSV), Pressure 10, Positive End-Expiratory Pressure (PEEP) 6, Fraction of Inspired Oxygen (FiO_2) 40%} was started, and Intravenous (i.v.) fluids were given. Investigations revealed a deranged coagulation status {Prothrombin time of 19.5 seconds, International Normalized Ratio (INR) of 1.40, activated Partial Thromboplastin Time (aPTT) 71 seconds}.

Injection vitamin K 1.0 mg i.v. was given and Fresh Frozen Plasma (FFP) was also transfused (10 ml/kg). Scrotal swelling with discolouration of scrotum was observed at 16 hours after birth. Bluish discolouration of the right inguinal region was also observed, which gradually increased to involve the abdomen on the right side [Table/Fig-1]. Inhouse Ultrasonography (USG) was not available at the time limiting evaluation of the scrotum. Considering the urgency of salvaging testes, scrotal exploration was done within two hours. The entire scrotal sac was filled with blood and blood clots. Bilateral testes were healthy but oedematous. The collected blood was drained and bilateral testicular fixation was done, after attaining haemostasis [Table/Fig-2-4].

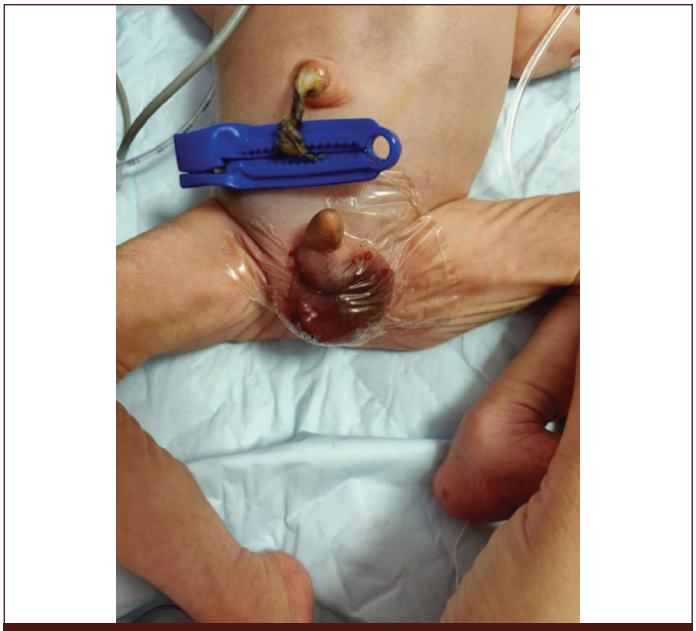
One unit of FFP was transfused postexploration. Paracetamol drops were given for analgesia. The baby was then extubated 24 hours after surgery, and was put on bubble Continuous Positive Airway Pressure (CPAP) support. An ultrasonographic assessment of the abdomen was done on the third day of life, which revealed a heterogeneously hyperechoic area measuring approximately 1.75×1.7×1.2 cm, with 1.8 cc of volume in the right adrenal, which was suggestive of right adrenal haematoma [Table/Fig-5].

[Table/Fig-1]: Scrotal swelling with bluish discolouration of right flank.

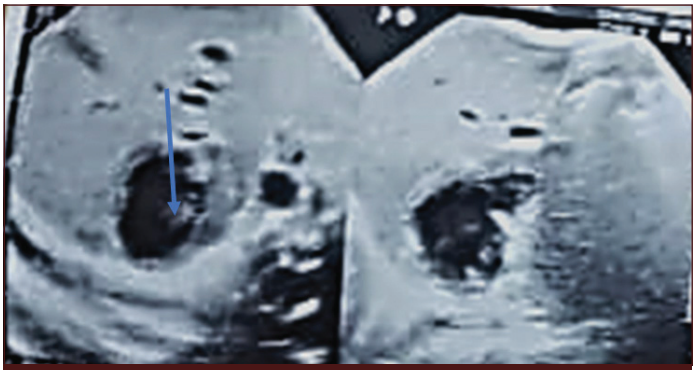


[Table/Fig-2]: Left testis during exploration. **[Table/Fig-3]:** Right testis during exploration. (Images from left to right)

A diagnosis of scrotal haematoma associated with adrenal haemorrhage was thus made, and it was managed conservatively. There were no features of adrenal dysfunction such as hypotension, hypoglycaemia, or vomiting. A repeat ultrasonographic assessment, at 14 days of life, showed the right adrenal gland was bulky



[Table/Fig-4]: Scrotum postexploration.



[Table/Fig-5]: Adrenal haemorrhage in Ultrasonography (USG) image (arrow).

measuring approximately 1.7×1×0.9 cm with cystic area within. The baby was discharged on day 18 of life with advise about feeding and on multivitamin and calcium supplements. He has been regularly followed-up and at the last visit he had normal adrenal glands and testis and he was three months old.

DISCUSSION

Acute scrotal swelling in a neonate is a condition which requires prompt diagnosis and management to salvage the underlying testicular tissue if involved. It may be caused by conditions involving the testis, epididymis or the scrotal sac [1,2]. Neonatal adrenal haemorrhage may sometimes present as inguinoscrotal swelling, and may require immediate surgical exploration as they may mimic testicular torsion or strangulated hernia [3,4]. Ultrasonography is the imaging modality of choice as it provides a non invasive assessment of the scrotum and guides for the further medical and surgical management [5].

Acute scrotal haematoma in the neonatal period is a rare condition, and exact incidence remains unknown. Though there are many causes which may result in scrotal haematoma, time is of essence as testicular torsion is one of the differentials which needs urgent surgical correction [6].

Doppler ultrasonography has gradually replaced the need of prompt surgical exploration of scrotum and can differentiate conditions such as testicular torsion, scrotal or testicular oedema, inguinal hernia, testicular trauma, or adrenal haemorrhage in an acute scrotum [7]. Ultrasonography along with doppler though an easy aid for diagnosis of testicular torsion may not be available. It is better to explore the testis to save the gonad if USG is not available [8]. In this case, as there was unavailability of USG assessment, testicular exploration was done.

Gkantseva-Patsoura S et al., reported a case of scrotal haematoma, the exact aetiology of which remained elusive. The neonate was managed conservatively with regular ultrasonographic assessment of scrotum [9]. Thus, one should be aware that even after a complete evaluation, exact aetiology in some of the cases may remain obscure. In the index case, baby scrotal haematoma may have resulted from coagulopathy.

Adrenal haemorrhage has been reported to be the second most common cause of haemoperitoneum in neonates with the incidence of 2/1000 births [10]. The causes can be birth asphyxia, trauma during delivery or haemorrhagic disorders [11]. The index baby had birth asphyxia and coagulopathy which may have resulted in adrenal haemorrhage. Adrenal haemorrhage is common on the right side with about 10 percent cases being bilateral [12]. Most of the times it remains confined within the capsule but breach of the capsule may result in spread of bleed to retroperitoneum and rarely into the peritoneal cavity [13]. In two cases reported by Kouame YGS et al., adrenal haemorrhage presented as acute scrotum, and one of the neonate required surgical exploration of scrotum due to poor testicular vascularity. The authors concluded that serial ultrasonographic observation was a good treatment strategy in adrenal haemorrhage [14].

The scrotal discolouration is also a sign of testicular torsion. Though considered a rare entity, it is now reported more frequently. Most of the cases of testicular torsion occur before birth and only 20% of testicular torsion is thought to occur postnatally [15]. Abbas TO and Ali M reported a case of neonate presenting with bluish discolouration of the unilateral scrotum, which was managed surgically. They concluded that an immediate surgical exploration should be considered in suspected bilateral neonatal testicular torsion [16]. In the index case, the baby presented with bluish discolouration of the scrotum and as no radiological evaluation was possible at the time it was decided to explore the scrotum.

If testicular torsion is not the cause of haemoscrotum most of the time, it can be managed conservatively. The surgical exploration is required only when the conservative protocol fails or the haematoma is infected [17]. The adrenal haemorrhage, in the present case, was managed conservatively with regular clinical and ultrasonological evaluations. The patient so far has showed a good outcome. In the index case, adrenal haemorrhage can be an association and not the causation with haemoscrotum as the capsule of adrenal gland was not breached at the time of first ultrasonographic assessment. Considering the frequent association of scrotal haematoma with adrenal haemorrhage ultrasonography of the abdomen and evaluation of adrenals should always be considered in cases of scrotal haematoma.

CONCLUSION(S)

Scrotal haematoma, along with or due to adrenal haemorrhage, is a rare condition but one should remain aware of this, as it may prevent unnecessary surgical exploration. A speedy evaluation is of paramount importance to rule out testicular torsion. Urgent scrotal and abdominal ultrasound is the diagnostic modality of choice and may prevent unnecessary surgical exploration. But if one suspects clinically, and there is delay or unavailability of ultrasonographic assessment, one should explore the scrotum to salvage the testis.

REFERENCES

[1] Kreeftenberg HG Jr, Zeebregts CJ, Tamminga RY, de Langen ZJ, Zijlstra RJ. Scrotal hematoma, anemia and jaundice as manifestations of adrenal neuroblastoma in a newborn. J Pediatr Surg. 1999;34(12):1856-57.

[2] Sencan A, Karaca I, Bostanci Sencan A, Mir E. Inguinoscrotal hematocele of the newborn. Turk J Pediatr. 2000;42:84-86. Doi: 10.1097/01.XPS.0000434560.59387.a5

[3] Noviello C, Cobellis G, Muzzi G, Pieroni G, Amici G, Martino A. Neonatal adrenal hemorrhage presenting as contralateral scrotal hematoma. Minerva Pediatr. 2007;59(2):157-59.

[4] Adorisio O, Mattei R, Ciardini E, Centonze N, Noccioli B. Neonatal adrenal hemorrhage mimicking an acute scrotum. J Perinatol. 2007;27:130-32. Doi: https://doi.org/10.1038/sj.jp.7211638

[5] Bhatt S, Ahmad M, Batra P, Tandon A, Roy S, Mandal S. Neonatal adrenal hemorrhage presenting as "Acute Scrotum"-looking beyond the obvious: a sonographic insight. J Ultrasound. 2017;20(3):253-59.

[6] Francis XS, Mark FB. Abnormalities of the testes and scrotum and their surgical management. In book: Campbell-Walsh Urology (pp.3557-3596.e13) AJ Wein, Kavoussi LR, Novick AC, Peters CA, Eds., vol. 4, pp. 3789-3793, W.B. Saunders, New York, NY, USA, 2007.

[7] Lam WW, Yap TL, Jacobsen AS, Teo HJ. Colour Doppler ultrasonography replacing surgical exploration for acute scrotum: myth or reality? Pediatr Radiol. 2005;35(6):597-600.

[8] Omisanjo AO, Ikuerowo SO, Bioku MJ, Esho JO. Torsion of the testis in Lagos: a five year experience. Nigerian Journal of Urology. 2012;1(1-2):24-27.

[9] Gkantseva-Patsoura S, Katsaras G, Georgiadou P, Lainakis N, Liovarou E, Theofanopoulos R, et al. Idiopathic scrotal hematoma in a neonate. Ger Med Sci. 2021;19:Doc01. Doi: 10.3205/000288. eCollection 2021.

[10] Demirel N, Baş AY, Zenciroğlu A, Taşci-Yildiz Y. Adrenal bleeding in neonates: report of 37 cases. Turk J Pediatr. 2011;53(1):43-47.

[11] Adorisio O, Mattei R, Ciardini E, Centonze N, Noccioli B. Neonatal adrenal hemorrhage mimicking an acute scrotum. J Perinatol. 2007;27:130-32. Doi: https://doi.org/10.1038/sj.jp.7211638

[12] Tognato E, Ceratto S, Enrico G, Fiorica L, Spola R, Loperfido B, et al. Neonatal adrenal hemorrhage: a case series. Am. J. Perinat. 2020;37(Suppl2):57-60.

[13] Abdu AT, Kriss VM, Bada HS, Reynolds EW. Adrenal haemorrhage in a newborn. Am J Perinatol. 2009;26(8):553-57.

[14] Kouame YGS, Moulot MO, Enache T, Konan JM, Agbara K, Ehua M, et al. Adrenal gland hematoma presenting as an acute scrotum in a neonate. Journal of Pediatric Surgery Case Reports. 2022;76:102133. Doi: https://doi.org/10.1016/j.epsc.2021.102133

[15] Abraham MB, Charles A, Gera P, Srinivasjois R. Surgically managed perinatal testicular torsion: A single centre experience. J Matern Neonatal Med. 2016;29(8):1265-68.

[16] Abbas TO, Ali M. Bilateral neonatal testicular torsion; hidden surgical nightmare. Front Pediatr. 2018;6:318. Doi: 10.3389/fped.2018.00318. eCollection 2018.

[17] Jimoh BM, Chinwe EB, Adebisi AO, Ifeoma IC, Ogechi M, Oluwafemi AJ. Idiopathic scrotal hematoma in neonate: a case report and review of the literature. Case Rep Urol. 2014;2014:212914. Doi: 10.3205/000288.

PARTICULARS OF CONTRIBUTORS:

1. Assistant Professor, Department of Neonatology, Himalayan Institute of Medical Sciences, Dehradun, Uttarakhand, India.
2. Associate Professor, Department of Neonatology, Himalayan Institute of Medical Sciences, Dehradun, Uttarakhand, India.
3. Associate Professor, Department of Paediatric Surgery, Himalayan Institute of Medical Sciences, Dehradun, Uttarakhand, India.
4. Professor, Department of Neonatology, Himalayan Institute of Medical Sciences, Dehradun, Uttarakhand, India.
5. Fellow, Department of Neonatology, Himalayan Institute of Medical Sciences, Dehradun, Uttarakhand, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Rakesh Kumar,
Assistant Professor, Department of Neonatology, Himalayan Institute of Medical Sciences, Dehradun, Uttarakhand, India.
E-mail: drrakesh99@yahoo.com

PLAGIARISM CHECKING METHODS: [Jain H et al.]

- Plagiarism X-checker: Jan 05, 2022
- Manual Googling: Mar 01, 2022
- iThenticate Software: Mar 31, 2022 (6%)

ETYMOLOGY: Author Origin

AUTHOR DECLARATION:

- Financial or Other Competing Interests: None
- Was informed consent obtained from the subjects involved in the study? Yes (from Parents)
- For any images presented appropriate consent has been obtained from the subjects. Yes (from Parents)

Date of Submission: **Jan 01, 2022**
Date of Peer Review: **Feb 21, 2022**
Date of Acceptance: **Mar 02, 2022**
Date of Publishing: **Jun 30, 2022**