Neonatal Testicular Torsion Mimicking a Testicular Tumor

Jae Min Chung, Sang Don Lee[1]

From the Department of Urology, Kosin University College of Medicine, [1]Department of Urology, College of Medicine, Pusan National University, Busan, Korea

The large, hard, non-tender features of neonatal testicular torsion may sometimes lead to the misdiagnosis of a testicular tumor. The authors present the case of a 1-week old male neonate in whom the differential diagnosis between testicular torsion and a tumor proved difficult. Based on serial physical examinations and serial color Doppler ultrasonography findings, the initial diagnosis was a testicular tumor with/without torsion and a concomitant communicating hydrocele. However, the intraoperative findings did not support the existence of testicular torsion. A left radical orchiectomy and contralateral orchiopexy with herniorrhaphy were undertaken, but somewhat surprisingly, the final pathologic findings demonstrated a left testicular torsion. **(Korean J Urol 2008;49:957-960)**

Key Words: Neonate, Testicular torsion, Testicular cancer

대한비뇨기과학회지
제 49 권 제 10 호 2008

고신대학교 의과대학
비뇨기과학교실,
[1]부산대학교 의과대학
비뇨기과학교실

정재민 · 이상돈[1]

접수일자 : 2008년 4월 2일
채택일자 : 2008년 8월 25일

교신저자: Sang Don Lee
Department of Urology, College of Medicine, Pusan National University, 1-10, Ami-dong, Seo-gu, Busan 602-739, Korea
TEL: 051-240-7348
FAX: 051-247-5443
E-mail: lsd@pusan.ac.kr

A newborn male infant with an acute large scrotum should be evaluated promptly, and a meticulous physical examination is critical. In male neonates findings of a solid scrotal mass and discoloration suggest neonatal torsion until proven otherwise. However, the large, hard, non-tender testicular features of neonatal testicular torsion may sometimes lead to a misdiagnosis of testicular tumor, although very rarely such findings are caused by torsion associated with a testicular tumor. Führer et al[1] reported a case of intrauterine torsion of a testicular teratoma, and thus, testicular tumor must be ruled out of the differential diagnosis in cases with a solid neonatal scrotal mass. The authors present the case of a male neonate with testicular torsion who was misdiagnosed as having a testicular tumor.

CASE REPORT

A 3,030g male neonate was found to have a large, hard, non-tender mass in the left scrotum at one week after a normal 40-week vaginal delivery. However, the spermatic cord seemed intact along its entire length, and the entire left scrotum was opacified during the transillumination test. There were no obvious signs of inflammation or torsion of the testis by history- aking or physical examination, and his parents denied clinical symptoms, such as, poor feeding, irritability, unusual crying, and scrotal pain or discoloration. In fact, they had incidentally found the abnormal testis in the left scrotum. A physical examination revealed that the left testis was five to six times larger than the right testis without symptoms of pain, tenderness, or erythematous or edematous skin changes. The right testis appeared normal except for a soft cystic mass suggesting hydrocele.

Laboratory tests demonstrated that an alpha-fetoprotein level was 1,198 ng/dl (average level in newborn-2weeks: 33,113± 32,503 ng/ml), but other findings were normal. Color Doppler ultrasonography (CDUS) of the testis at presentation demonstrated a left testicular mass with heterogeneous echogenicity and a right communicating hydrocele. The left testis was more that six times larger than the right, and blood flow was markedly decreased in the testicular mass. Based on this initial physical examination and CDUS findings of the scrotum, we initially suspected pure testicular torsion or a testicular tumor with/ without torsion. After due consideration of the long clinical duration (7 days), the unmatched symptoms, signs, and physical examination and the CDUS findings of testicular torsion, we performed follow-up CDUS one week later to evaluate possible testicular changes in size or internal echogenicity that might aid the differential diagnosis of a tumor. However, CDUS of testis demonstrated no interval change (Fig. 1), and plain chest radiography revealed no abnormality. Finally, based on the

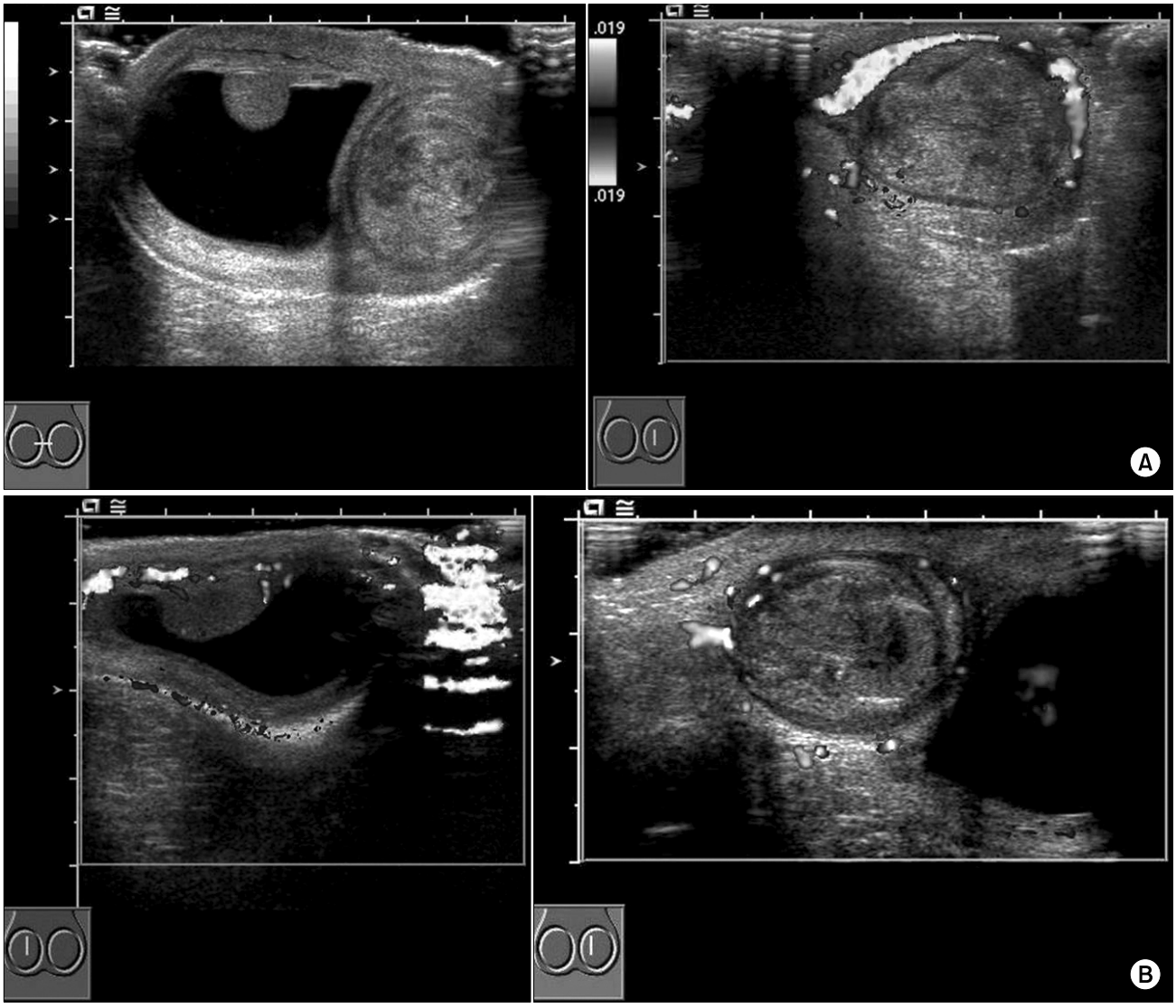

Fig. 1. Serial color Doppler ultrasonographic findings at first visit (A) and 1 week later (B). The left testis showed an ovoid intratesticular lesion with heterogeneous echogenecity, and was five times larger than the right testis. The right testis was normal with a hydrocele. There were no interval changes in ultrasonographic findings between the first visit and follow-up 1 week later.

serial physical examinations, serum alpha-fetoprotein level, and serial color Doppler ultrasonography findings, we arrived at an initial diagnosis of testicular tumor with/without torsion and a right communicating hydrocele.

Surgical exploration was performed though an inguinal approach under general anesthesia. The left testis was much enlarged and appeared grossly tumor-like in appearance with an apparently normal spermatic cord without torsion (Fig. 2). Left radical orchidectomy and contralateral orchiopexy with inguinal herniorrhaphy were conducted; the latter to prevent asynchronous torsion and to correct the communicating hydrocele.

The final pathological diagnosis of the left testis was testicular torsion (Fig. 2). The baby was healthy at the one-year follow-up.

DISCUSSION

Differential diagnoses in newborns with a scrotal mass must include inflammatory and neoplastic processes that affect the testicle and intrascrotal structures in addition to torsion. However, the large, hard, non-tender testicular features of neonatal testicular torsion may sometimes lead to a misdiagnosis of testicular tumor. We encountered a one-week old male neonate in whom the differential diagnosis of testicular torsion and a

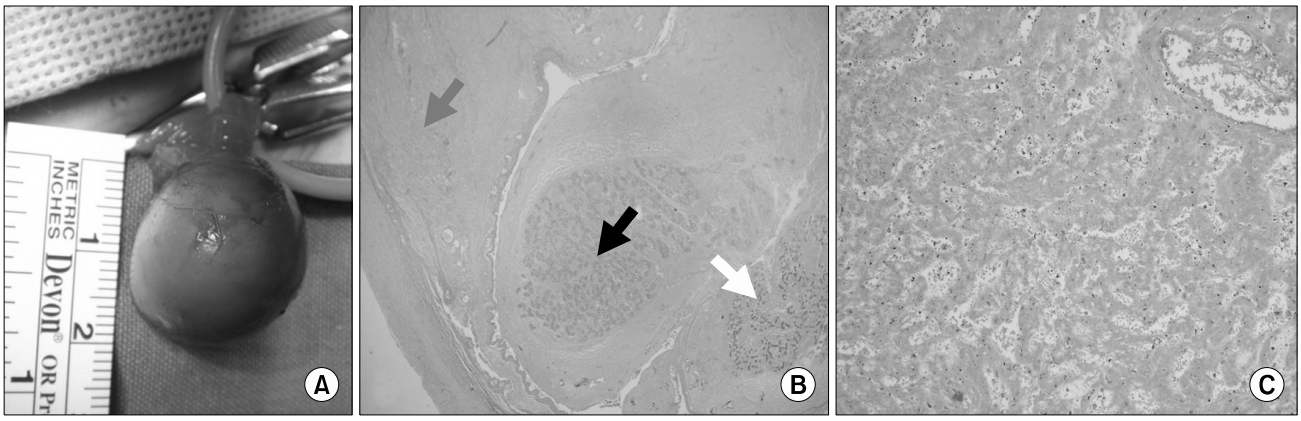

Fig. 2. Intraoperative gross and microscopic findings of the left testis. (A) A large mass wrapped around the testis, spermatic cord, and epididymis. (B) On the right side of the epididymis, the nucleus showed the normal structure (white arrow), however on the lower center of the epididymis, the nucleus disappeared due to the infarction (black arrow). The left testis demonstrated the necrotic findings that the normal seminiferous tubules are not visible due to the infarction (gray arrow). (C) Seminiferous tubule structures were lost with congestion on the intermediate center (H&E; B: x20; C: x200).

testicular tumor proved problematic.

Essentially, the diagnostic process in this case was difficult for the following reasons. First, there were no obvious inflammatory signs and history taking provided no indication of torsion. His parents had never noticed symptoms of poor feeding, irritability, unusual crying or scrotal pain or discoloration, and sought advice after incidentally finding a large, hard, non-tender testis in the left scrotum. Second, physical examinations revealed an apparently intact spermatic cord along its entire length and a large, hard, non-tender testicular mass without skin discoloration. Finally, CDUS of the scrotum demonstrated heterogeneous echogenicity and a markedly reduced blood flow in the left testis, which was more than six times larger than the right testis. Taken together, these findings were insufficient to distinguish between testicular torsion and a testicular tumor. In fact, initial findings supported a diagnosis of testicular tumor with/without torsion rather than testicular torsion alone.

CDUS findings of the newborn testis may assist in the differential diagnosis of newborn scrotal masses.[2] In particular, the CDUS features of spermatic cord torsion are highly correlated with the duration and severity of a compromised vascular supply to the testis. On the other hand, testes torsed earlier during gestation, are likely to have undergone more extensive necrotic changes and parenchymal liquefaction, and thus, are likely to demonstrate a more homogeneous echogenic pattern. Furthermore, dystrophic calcium deposits should be common. Cartwright et al[3] reported that a decreased size, a more homogeneous parenchymal echo texture, and an encompassing echogenic ring were present in CDUS images at birth and at 5-week post-natal follow-up visits in cases of newborn testis torsion. In our case, initial CDUS findings revealed a sharply marginated heterogeneous ovoid mass of size 1.5x1.9 cm. We considered that testis size and contents might change due to testicular torsion with time because of tissue ischemia, but no interval change was observed by CDUS over the one week period. Accordingly, this finding supported a diagnosis of a testicular tumor with/without torsion.

Serum alpha-fetoprotein levels are useful during the differential diagnosis of testicular tumor and torsion. However, alpha-fetoprotein levels are normally elevated during the first six months of life,[4] and thus, a finding of 1,198 ng/dl did not aid the differential diagnosis.

In this case, we preoperatively suspected a testicular tumor with/without torsion. In addition, because the testicular mass appeared intraoperatively to be a testicular tumor, radical orchiectomy was performed. We also performed contralateral orchiopexy with inguinal herniorrhaphy because of a possibility of contralateral asynchronous testicular torsion and a concomitant communicating hydrocele.

Taken together, this case demonstrates that the clinical features of testicular torsion can occasionally mimic those of a tumoral mass in the testis, especially in neonates. The authors hope that this account encourages diligence during the differential diagnosis of these two entities in neonates and early infants.

REFERENCES

1. Führer S, May M, Koch A, Marusch F, Gunia S, Erler T, et al. Intrauterine torsion of a testicular teratoma: a case report. J Perinatol 2005;25:220-2
2. Ricci P, Cantisani V, Drudi FM, Carbone I, Coniglio M, Bosco S, et al. Prenatal testicular torsion: sonographic appearance in the newborn infant. Eur Radiol 2001;11:2589-92
3. Cartwright PC, Snow BW, Reid BS, Shultz PK. Color Doppler ultrasound in newborn testis torsion. Urology 1995;45:667-70
4. Wu JT, Book L, Sudar K. Serum alpha fetoprotein (AFP) levels in normal infants. Pediatr Res 1981;15:50-2