Allantoic cyst - an unusual umbilical cord swelling

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ABSTRACT

We report a baby with an unusual umbilical cord swelling. On the antenatal scans, a cystic area within the umbilical cord near its insertion onto the abdominal wall was detected. Postnatally an unusually thick umbilical cord with a yellow fluid filled cyst at the base was noted. The fluid from the cyst was confirmed as urine and ultrasound confirmed patent urachus. The baby underwent a cystoscopy and excision of patent urachus with associated allantoic cyst. Allantoic cyst is a rare swelling formed at the base of umbilicus associated with a patent urachus which results from an allantoic remnant. Paediatricians need to be aware about this condition as investigation is required to differentiate allantois cysts from umbilical pseudocysts. A patent urachus with allantoic cyst requires surgical excision.

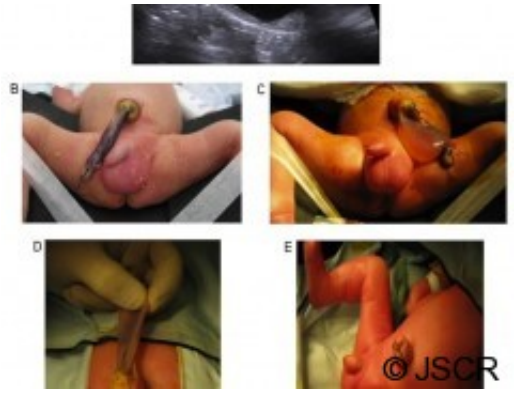
INTRODUCTION

The allantois is an endermal diverticulum that communicates with the cloaca (hind-gut). Septation of this by the urorectal septum and Rathke's folds gives rise to the urogenital sinus (UGS), the cranial part of which gives rise the bladder. The persistent allantois communicating from the dome of the bladder to the umbilicus is the urachus, which ultimately undergoes apoptosis and gives rise to the median umbilical ligament. Persistence of the urachus may be partial giving rise to urachal cysts, urachal diverticulum or sinus, or may be complete allowing communication with the bladder. It was first described in the sixteenth century and just over 100 cases in the neonatal period have been reported so far (1). We present a baby with this rare condition associated with an allantoic cyst and a thickened umbilical cord.

CASE REPORT

A 19 year old Caucasian primigravida attended for a routine antenatal scan. On her 27 weeks scan (which was done due to low liquor volume in the previous scans) , a septated cystic area was detected within the umbilical cord near its insertion onto the abdominal wall measuring 37×27 mm and 19×20 mm. There was no evidence of omphalocoele as stomach, liver are all identified inside the abdominal cavity and anterior abdominal wall was intact. End diastolic flow was present on umbilical artery doppler. Bladder was seen normally situated excluding a bladder exstrophy.These cysts are unchanged on size on subsequent scans. The most likely diagnosis thought was an allantoic cyst. At 36 weeks, a male baby weighing 3390 grams was

born by emergency section for failure to progress. At birth, he was noted to have an unusually thick umbilical cord with a yellow-fluid filled cyst at the base. He was admitted to the neonatal unit. The subsequent day the cyst was noted to be increasing in size and draining fluid. The fluid from the cyst was confirmed as urine because of high Creatinine of 730 umol/L. He was referred to a tertiary children's hospital for further management. Postnatal ultrasound scan showed a patent urachus, communicating with the umbilicus (figure 1A). He underwent a cystoscopy. This demonstrated that the allantoic cyst filled with bladder irrigation (figure 1B,C), and that there was no congenital bladder outlet obstruction. The patent urachus in continuity with its associated allantoic cyst (Figure 1D). Postoperative period was uneventful. He was discharged home on Trimethoprim prophylaxis and is followed up by the urologists.



DISCUSSION

Patent urachus is a rare anomaly, with an incidence of 1-2.5 per 100000(1).

Antenatally the differential diagnosis of patent urachus includes pseudo-cyst (degeneration of Wharton's jelly), allantoic cyst , omphalo-mesentric duct cysts, anterior abdominal wall defects, vascular lesions of the umbilical cord and bladder exstrophy. Both omphalocoele and patent urachus can present as a cystic mass arising from the ventral wall of the fetus with the umbilical cord inserting into the ventral mass, but it is important to make this distinction prenatally because of the markedly different prognosis of the two anomalies (2). Rich et al reported associated anomalies in 46% of children presenting with urachal anomalies including omphalocele, omphalomesenteric remnant, meningomyelocele, unilateral kidney, hydronephrosis and vaginal atresia (3). Careful fetal evaluation should be done if patent urachus is diagnosed in uteroto look for these. Postnatally the differential diagnosis of an umbilical cord cyst is between an umbilical pseudo-cyst and an allantoic cyst with patent urachus, the other diagnoses being clinically obvious.

A simple umbilical pseudocyst requires no treatment, but needs to be differentiated from an allantoic cyst with persistent patent urachus. Ultrasound allows the channel communicating from the umbilicus to the bladder to be demonstrated (figure 1A). Although the association between a patent urachus and bladder outlet obstruction is low, obstruction needs to be excluded either preoperatively by micturating cystourethrogram, or by intraoperative cystoscopy (4,5,6,7). The patent urachus is treated by excision, and closure of the dome of the bladder, performed by a cosmetic infra-umbilical incision (figure 1B-E). Conservative management of urachal remnants including cysts, fistulae and diverticulae has been

described (8,9), but is not appropriate where an allantoic cyst of the umbilicus is in continuity with the urachus and the calibre of the urachus is relatively large.

Postoperatively these babies are commenced on Trimethoprim prophylaxis, which is continued until review in clinic and a normal ultrasonogram of the urinary tract seen. Other urinary tract abnormalities are investigated and treated as appropriate.

REFERENCES

1. Nix JT, M.J., Albert M, Wendt DL. , Congenital patent urachus. J Urol, 1958. 27: p. 264-8
2. Tolaymat, L.L. et al., Persistent patent urachus with allantoic cyst: a case report. Ultrasound Obstet Gynecol, 1997. 10(5): p. 366-8
3. Rich R.H., Hardy B.E., and Filler R.M. Surgery for anomalies of the urachus. J Pediatr Surg, 1983. 18(4): p. 370-2
4. Cilento B.G. Jr. et al., Urachal anomalies: defining the best diagnostic modality. Urology, 1998. 52(1): p. 120-2
5. Gonzalez R. et al., Urethral atresia: long-term outcome in 6 children who survived the neonatal period. J.Urol., 2001. 165(6 Pt 2): p. 2241
6. Kaefer M., et al., Posterior urethral valves, pressure pop-offs and bladder function. J Urol, 1995. 154(2 Pt 2): p. 708-11
7. Mesrobian H.G., et al., Ten years of experience with isolated urachal anomalies in children. J Urol, 1997. 158(3 Pt 2): p. 1316-8
8. Galati V. et al., Management of urachal remnants in early childhood. J Urol, 2008. 180(4 Suppl): p. 1824-6; discussion 1827
9. Lipskar A.M., et al., Nonoperative management of symptomatic urachal anomalies. J Pediatr Surg. 45(5): p. 1016-9