

Case Report :

Patent urachus along with patent vitellointestinal duct: A very rare combination

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Abstract:

We are presenting herein a rare combination of patent urachus and patent vitellointestinal duct in a 2-month old male child who presented with umbilical discharge since birth with umbilical induration. Ultrasonography suggested an urachal abnormality while cystourethrogram was normal. On exploration there was presence of patent urachus and inadvertent opening of peritoneum showed presence of patent vitellointestinal duct as well. The urachus was completely excised, the PVID resected and ileum anastomosed. Postoperatively patient did well. To the best of our knowledge only 6 cases of patent urachus along with patent vitellointestinal duct have been reported in the literature. Though not making a dictum, a high index of suspicion should be present for the presence of patent vitellointestinal duct while evaluating an infant with serous umbilical discharge with patent urachus.

Keywords: Patent urachus; patent vitellointestinal duct

Introduction:

The urachus is an embryonic remnant resulting from involution of the allantois, a canal that drains the urinary bladder (cloaca) of the fetus while vitellointestinal duct is a communication between the midgut and the yolk sac^[1,2]. A patent urachus (PU) is rare, with an estimated incidence of 1-2 per 100000, while patent vitellointestinal duct has an incidence varying from 1 in 5000 to 8000 live births^[3,4]. A patent urachus (PU) being associated with patent vitellointestinal duct (PVID) is very rare. We are adding one more case of patent urachus along with patent vitellointestinal duct, to the already reported 6 cases in the literature^[1-6].

Case Report:

A 2-month old male child presented with serous umbilical discharge since birth with umbilical induration, treated previously with antibiotic creams,

silver nitrate treatment without benefit.

Ultrasonography suggested an urachal abnormality while cystourethrogram was normal. A provisional diagnosis of urachal anomaly was made and a decision for proceeding with surgical intervention was made.

Preoperative optimization was completed. Under general anaesthesia, a 5 french infant feeding tube could be negotiated through a compressed opening at lower margin of umbilicus, after dilating it with a probe. The feeding tube started draining urine. It could be palpated per-abdomen, within the bladder confirming the diagnosis of patent urachus. Transverse sub-umbilical incision was given. Urachus was found to be connecting the apex of the bladder to the umbilicus. An attempt was made to excise urachus, extraperitoneally, however, inadvertently the peritoneum was opened and patent vitellointestinal

duct was seen, which was confirmed by passing a probe through the umbilicus and tracing it into the ileum as shown in the Figure-1. Thus four separate tubular structures contiguous with the umbilicus were exposed as shown in the Figure-2. The urachus was completely excised, the PVID resected and ileum anastomosed. Baby recovered well postoperatively. The specimens confirmed to be PU and PVID.

Discussion:

During the 3rd week of intrauterine life there is a communication between the intraembryonic gut and the yolk sac. As the embryonic development proceeds communication narrows into a duct known as the vitellointestinal duct (VID). With the establishment of placental nutrition this duct usually becomes obliterated by the end of the 7th week of intrauterine life and eventually disappears. Meckel's diverticulum is the commonest anomaly (present in about 2% of humans) among the persistence of this duct, while PVID is the rarest [7].

In fetal life, the urachus (tubular structure) attaches the bladder dome to the umbilicus. It lies in the space of Retzius, between the transversalis fascia anteriorly and the peritoneum posteriorly and then runs within the umbilical cord. It becomes progressively obliterated into a thin fibrous cord (median umbilical ligament) by birth [2,4,5]. The failure of complete obliteration of the lumen during gestation results in urachal anomalies and these are: patent urachus (entire tubular structure is intact), urachal sinus (the umbilical end fails to close), urachal diverticulum (the bladder end fails to close), urachal cyst (both ends close but the central lumen remains open) [8,9].

The presence of PVID or PU may be asymptomatic. But when symptomatic, PVID may present with serous or fecal discharge. The telltale sign of patent urachus is leakage of urine through the umbilicus

(continuous or intermittent) [7]. Crying, straining, voiding, or the prone position may accentuate intermittent drainage, which was seen in our case also.

In our case, ultrasonography did suggest a urachal remnant, but failed to demonstrate a PVID. A fistulogram couldn't be performed due to difficulty in cannulating the small caliber of tract. A cystourethrogram was done to look besides patent urachus, bladder anatomy/outline, any reflux and lower urinary tract bladder outlet) obstruction. It could not reveal patency of the urachus. Preoperative diagnosis of dual patency of urachus and PVID is difficult and is usually missed [2-5]. Surgical exploration is mandatory to treat these anomalies when in doubt. Excision of PVID and end to end anastomosis of ileum and excision of patent urachus should be carried out simultaneously.

Conclusion:

Though not making a dictum, a high index of suspicion should be present for the presence of patent vitellointestinal duct while evaluating an infant with serous umbilical discharge with patent urachus.

Figure 1: Intraoperative photograph showing presence of both yolk sac remnants. The PVID (patent vitellointestinal duct) is looped in the sling. A probe inserted into the umbilicus runs through the PU (patent urachus) indicated by the arrow.

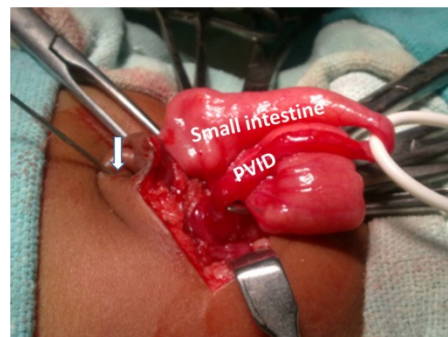


Figure 2: Intraoperative photograph showing Patent urachus (large arrow) between the obliterated umbilical arteries (small arrows), PVID (patent vitellointestinal duct) is looped in the sling.



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