Case Report

Patent Urachus with Patent Vitellointestinal Duct: A Rare Simultaneous Occurrence

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Abstract

A large number of congenital anomalies often involve the umbilicus. This is a report of two such anomalies together in an infant. The child had a mass protruding from the umbilicus since birth. The urachus was noted to be patent on voiding cystourethrogram. On exploration, a patent vitellointestinal duct was also noted. Resection and anastomosis was done for the vitellointestinal duct, and the urachus was excised close to the dome of the bladder. Histopathological examination confirmed a tube lined by intestinal epithelium and the urachal remnant showing a dense fibrous tube-like structure. The omphalo-mesenteric vessels are located between the urachus and the patent vitellointestinal duct, and care should be taken while incising or dissecting in this region to prevent bleeding.

Keywords: Embryological remnant, patent vitellointestinal duct, umbilicus, urachus

Introduction

The umbilicus is clinically and embryologically a significant connecting structure. As such, a large number of congenital anomalies often involve the umbilicus.[1] The presence of a patent vitellointestinal duct is fairly common and is seen in 1 in 8000 live births.[2,3] A patent urachus usually occurs secondary to lower urinary tract outflow obstruction and is rarer with 1 in 100,000 live births.[2] We report the occurrence of both these anomalies together in an infant.

Case Report

A 1-year-old male presented with a 2 cm × 1 cm pinkish mass protruding from the umbilicus since day 6 of life. It was associated with a scanty amount of whitish discharge on and off. The parents had not noted any faecal or urine discharge from the umbilicus. They had seen few blood stains on the clothes which they attributed to frequent scratching of the umbilical region by the child. There was no history of dribbling, straining during voiding or poor stream of urine. On examination, a 2 cm × 1 cm, pinkish-red mass was present at the umbilicus with a layer of mucoid discharge present over it. A small lumen was visible, but it was not probe patent. The abdomen was otherwise normal.

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On ultrasonography, a tract of 1 mm width was seen going deep into the peritoneal cavity, but its distal extent could not be defined specifically. On a voiding cystourogram, the bladder and urethra were normal, with no features of bladder outlet obstruction. The urachus was outlined but was short of the bladder. He was planned for umbilical exploration with a provisional diagnosis of patent urachus. On umbilical exploration, the urachal remnant was seen going inferiorly towards the bladder [Figure 1]. It was transfixed at the dome of the bladder and excised. A patent vitellointestinal duct was also noted joining the anti-mesenteric aspect of the ileum with a broad base at 60 cm from the ileo-caecal valve [Figure 2]. Resection of the vitellointestinal duct along with a portion of the ileum was done, and end-to-end ileal anastomosis was done. The patient was discharged on post-operative day 4 on full feeds and has been doing well on follow-up at 6 months.

Histopathological examination of the excised specimen revealed a fibromuscular tube lined by the intestinal epithelium and dilated glands and vessels. No ectopic mucosa was noted. The urachal remnant showed a dense fibrous tissue

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Figure 1: Voiding cystourogram showing a partially patent urachus (white arrow)

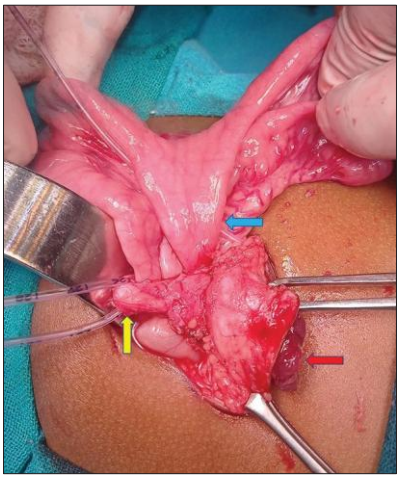


Figure 2: Intraoperative image showing the umbilical swelling (red arrow), patent urachus with an infant feeding tube looped around it (yellow arrow) and patent vitellointestinal duct (blue arrow)

tube lined by the urothelium. Both tissues had no dysplasia or malignancy.

Discussion

The first reported case of a patent urachus with a vitellointestinal duct is from 1898 by Lexer who described it in a 1-year-old boy who also had phimosis.[4] Since then, about 13 cases have been reported, as per the review by Bertozzi.[2]

Embryologically, the two structures are closely related. The urachus develops from the allantois. With the development of the urethra, the urachus gradually undergoes segmental obliteration by the 15th week of gestation. Postnatally, the obliterated urachus is represented by a fibrous cord called the median umbilical ligament. The vitellointestinal duct develops from the yolk sac and undergoes degeneration and obliteration by the 16th week of gestation.[5]

Contrast imaging like a voiding cystourogram should be done in patients with patent urachus to rule out bladder outlet obstruction. Patent vitellointestinal duct can also be delineated with a contrast fistulogram. It may also have associated ectopic gastric mucosa at its base which can be confirmed by a technetium-99m sodium pertechnetate Meckel scintigraphy scan. The diagnosis can be well suspected with a specific clinical history and examination.[6]

The common treatment of umbilical congenital anomalies is their complete excision and umbilical reconstruction. Urachal excision should ideally include a portion of the bladder dome to avoid the risk of urachal carcinoma at the base of the urachus.[7] Similarly, it is advised that the excision of a patent vitellointestinal duct should include a portion of the ileum to ensure complete removal of ectopic mucosa if present. In our case, the urachus was excised till the dome of the bladder. The patent vitellointestinal duct was excised along with a portion of the ileum on both sides, and end-to-end ileo-ileal anastomosis was done. The omphalo-mesenteric vessels are located between the urachus and patent the vitellointestinal duct, and care should be taken while incising or dissecting in this region to prevent bleeding.[8]

Previous authors have reported the presence of this combination of anomalies with inverted ileal prolapse through the patent vitellointestinal duct[9] and umbilical hernia in an adult.[10] As seen in most previously reported cases, the diagnosis here was incidental. A good clinical evaluation and active reporting will ensure that such uncommon associations do not get overlooked or present with complications.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient (s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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