

## Case Report

### Adult case of Infected Urachal sinus and Management

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#### Abstract:

Urachus is a remnant fibrous strand connecting umbilicus to bladder. In rare instances it remains patent to give congenital anomalies. These anomalies usually present in pediatric population , around 1 In 5000 children present with such anomalies. Only about 2% ratio is presented in adult hence diagnosis is difficult when presented in adult age. Most patients remain asymptomatic or trivial symptoms of umbilical discharge. Only in presence of secondary infection, symptoms like pain, erythema, swelling, purulent discharge may be present. Herein , case if infected urachal sinus is reported in a 30 year old male diagnosed clinically as well as radiologically and managed with preoperative antibiotics and operative procedure. High index of suspicion is required to diagnose urachal sinus in adults as presentation in adult age group is very rare. Correct diagnosis with multimodal imaging and complete surgical resection is recommended to prevent subsequent reinfection or malignant transformation. According to current literature, two stage treatment approach is found to be most effective. In our study short course of antibiotics prior to Surgery followed by excision of urachal sinus with omphalectomy and post op cover of same antibiotics helped to reduce hospital stay and was seen to have no post operative complications.

**Keywords:** Infected Urachal sinus , remnant fibrous , congenital anomalies

#### Introduction:

Urachus is a remnant fibrous strand connecting umbilicus to bladder. In rare instances it remains patent to give congenital anomalies. These anomalies usually present in pediatric population , around 1 In 5000 children present with such anomalies. Only about 2% ratio is presented in adult hence diagnosis is difficult when presented in adult age.

Most patients remain asymptomatic or trivial symptoms of umbilical discharge. Only in presence of secondary infection, symptoms like pain, erythema, swelling, purulent discharge may be present.

#### Case presentation:

30 year old male patient presented to our OPD with history of swelling at umbilicus for 15 days which was painful and gradually increased in size. There was also discharge of serous fluid from umbilicus over last 15 days. History of fever was present for last 5 days, which was mild n intermittent in nature. No history of abdominal pain, nausea, vomiting, no history of bowel or bladder disturbances, no burning micturation was present . No previous episodes of umbilical discharge or swelling.

On per abdominal Examination, abdomen was soft on palpation. A 3×3 cm swelling present at umbilicus which was cystic and tender on palpation, non erythematous but local rise of temperature was present. Minimal serous discharge was noted from umbilicus.

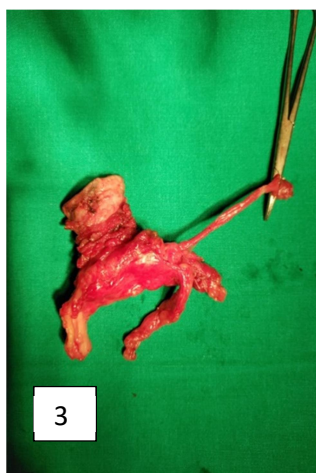
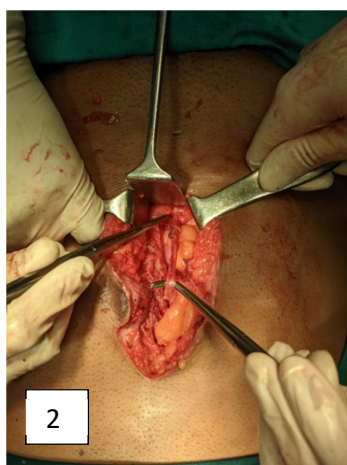


Routine blood investigations were normal, with total counts of  $10.8 \times 10^3$  cells/uL and urine analysis showed no evidence of urine infection. On radiological investigations, Ultrasound picture showed cystic swelling with internal echoes at umbilicus. Whereas CT abdomen noted cystic swelling at umbilicus with tubular connection to anterosuperior aspect of bladder.

Swab culture from umbilical discharge showed streptococcus viridian, sensitive to ceftriaxone and clindamycin.

#### **Management:**

Two stage approach used emphasizing infection resolution before surgical intervention. Two stage treatment method is known to reduce risk of post-op complication i.e. wound infection and Shortens average length of



hospitalization. Patient treated with oral antibiotics ceftriaxone and clindamycin, which were chosen according to culture sensitivity of umbilical discharge for 5 days. Patient posted for surgery after swelling and discharge subsided. Omphalectomy with excision of urachal sinus was performed, however bladder wall repair was not needed in this patient. Same antibiotics were continued in post op period for 5 days. Patient had uncomplicated recovery. No post op bowel bladder disturbances.

#### **Discussion:**

The Urachus is an embryological ductile remnant that connects the anterior dome of urinary bladder to the umbilicus. Collectively the urachus is formed by remnants of the cloaca and the allantois. The cloaca divides into 2 distinct structures between the fourth and seventh week of gestation. anterior the cloaca gives rise to primitive urogenital sinus while posterior anorectal canal is formed. The Allantois arises from yolk sac and extends to the Cephalon extension of urogenital sinus which is precursor of fetal bladder, establishing a connection known as Urachus.<sup>1</sup>

From the level of the umbilical, the bladder will progressively descent and reach the pelvis by 4th or 5th month of gestation .while descending ,the unaccustomed urachus stretches, the apical portion gradually narrows and eventually the the lumen obliterates . Subsequently urachus becomes a fibrous cord like structure known as the median umbilical ligament.The median umbilical ligament is a vestigial remnant that extends from dome of bladder to umbilicus. The urachus lies within the space of rezius , with the transverse fascia lying anterior to urachus and peritonium being posteriorly. <sup>2</sup>

The urachus comprises of three layers. In approximately 70% cases, innermost layer is transitional epithelial, and in remaining 30% it is columnar epithelial. An intermediate submucosal connective tissue layer , outermost layer is made of smooth muscle which is continues with detrusor muscle. Once the lumen is obliterated ,different layers can't be distinguished. <sup>3</sup>

Congenital anomaly	Description	Incidence
Patent urachus	Free communication between bladder and umbilicus	50%
Urachal cyst	Persistence of central part of urachal canal, double blind cavity.	30%
Urachal sinus	Blind ending tract communicating with umbilicus	15%
Vesicourachal diverticulitis	Blind ending tract communicating with bladder	3-5%
Alternating sinus	Drain either into bladder or umbilicus	Very rare

Alterations in above embryological process can give rise to following congenital anomalies <sup>4</sup>

Urachal sinus may be present since birth be asymptomatic for long duration unless complicated with secondary infection. Presentation may vary from simple umbilical swelling, discharge from umbilicus, to sever abdominal pain due to ruptured sinus or even peritonitis. Urine discharge from umbilicus will be present in patent urachus sinus whereas hematuria to urinary tract infection in Vesicourachal diverticulitis or Alternating sinus. <sup>5</sup>

Diagnosis can be confirmed radiologically by ultrasonography and contrast enhanced CT scan, sometimes dye can be injected through the umbilicus to trace the tract. Any associated bladder involvement can also be diagnosed on CECT abdomen. Umbilical discharge can be sent for culture sensitivity. The commonly cultured microorganisms are E.coli , enterococcus fascism, proteus,streptococcus viridans , fusobacterium. Antibiotics can be prescribed based on culture sensitivity. <sup>6</sup>

The various complications that can occur in this case can be as simple as secondary infection, which can be treated with antibiotics to major operative procedure demanding complications like cyst rupture, urachocolonic fistul, peritonitis which may even lend up in sepsis. Malignancy can be one of the rare complications, presenting with midline swelling with peripheral calcification, mural nodularity, invasion of surrounding structures and metastasis. Risk of malignancy in adults is high and prognosis is poor. <sup>7,8</sup>

Differential diagnosis of umbilical sinus are <sup>9</sup>

- anomalies of vitelline duct ( Meckel's diverticulum)
- Patent omphalomesenteric duct

- Infected umbilical vessel
- Omphalitis

Management is mainly surgical, excision of the urachal cyst or sinus, along with entire remnant urachal tract has to be done. Sometimes bladder wall repair is also required. Complete excision of wall and tract is essential as any remnants may be source of infection or malignancy. Two stage procedure is giving preoperative antibiotic course followed by above surgery. This is known to reduce postoperative complications and reduce hospital stay in general.<sup>10</sup>

#### **Conclusion:**

Herein, case of infected urachal sinus is reported in a 30 year old male diagnosed clinically as well as radiologically and managed with preoperative antibiotics and operative procedure. High index of suspicion is required to diagnose urachal sinus in adults as presentation in adult age group is very rare. Correct diagnosis with multimodal imaging and complete surgical resection is recommended to prevent subsequent reinfection or malignant transformation. According to current literature, two stage treatment approach is found to be most effective. In our study short course of antibiotics prior to Surgery followed by excision of urachal sinus with omphalectomy and post op cover of same antibiotics helped to reduce hospital stay and was seen to have no post operative complications.

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