

# Clinical Profile Of Umbilical Discharge In Adults; A Multicentric Study In North India

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## Abstract

**Objectives:** The current study has been conducted to find out the varied presentation of umbilical discharge in adults and their outcome after appropriate management. **Study design :** The study included the patients (29) admitted and diagnosed as a case of umbilical discharge in a 5-year period from January, 2005 to December, 2009. A total of 29 cases were admitted and 27 underwent surgery. **Results:** The maximum number of cases of umbilical discharge in adults was due to urachal anomalies. Other causes include laparoscopic surgery, umbilical discharge, pilonidal sinus, infection due to hair follicles, foreign bodies, non-specific acute and chronic inflammation and abscess of the umbilicus. **Conclusion:** Umbilical discharge is rare in adults and should be thoroughly and swiftly evaluated. Failure in diagnosis many result in poor outcome.

## INTRODUCTION

Development of the umbilicus is one of the most complex embryological processes in human beings and due to this it is subject to a large number of malformations.

The majority of these malformations manifest in the neonatal period. But rarely, these congenital malformations may present in young adults and they most commonly present with discharge through the umbilicus.

In this study of 29 cases of umbilical discharge in adults, the most common cause that we came across was urachal anomalies, accounting for a total of nearly 50%.

## MATERIAL AND METHODS

This study consists of 29 cases of young adult patients in the age group of 12-60 years with umbilical discharge (25 males and 4 females) admitted in the surgical wards and attended in the surgery OPD of L.L.R.Hospital Kanpur, S.R.N Hospital Allahabad and BRD Medical College Gorakhpur from January 2005 to December 2009.

## PLAN OF WORK

A detailed history was obtained for the type of discharge in respect of amount, color, odor and nature - whether the discharge was pus, fecal matter, urine, serous, serosanguinous or blood, its time and mode of onset and duration since its appearance. It was also asked whether it

was associated with some swelling or any history of altered bladder and bowel habits and related symptoms like pain, vomiting or any problem with micturition.

## PHYSICAL EXAMINATION

A thorough general and systemic examination was done to determine

1. Exact site of pathological discharge.
2. Whether the anomaly was associated with some other congenital anomaly or disease.
3. Any other specific associated problems like pyrexia, dehydration and septicemia.

## INVESTIGATIONS

Lab investigations

Hb, TLC, DLC, ESR

BT, CT

Urine: Routine/Microscopic

Urine: Culture sensitivity

Discharge: Culture sensitivity & cytology

RBS, Blood. Urea, S. Creatinine

Histopathological examination if required

## IMAGING TECHNIQUES

X-ray abdomen

BMFT

USG, CT scan  
 Fistulogram, Sinogram  
 MCU

**RESULTS**

Of the 29 cases admitted, 15 patients (51.72%) were having patent urachal anomalies. This is the most common cause. Three patients (10.34%) each had umbilical discharge due to laparoscopic surgery and umbilical hernia with ulceration. Umbilical abscess, vitelline umbilical sinus and recurrent folliculitis were diagnosed in 2 (6.89%) patients each. One patient (3.44%) was diagnosed with pilonidal sinus. One rare case of umbilical discharge due to advanced gall bladder carcinoma was also included in our study. (TABLE 1)

**Figure 1**

TABLE 1: Percentages of incidence

Diagnosis	No. of patients (out of 29)	Percentage	Symptom
Urachal anomalies	15 Patent urachus: 9 Urachal cyst: 5 Urachal sinus: 1	51.72%	Urine discharge
Post laparoscopic surgery	3	10.34%	Serous/purulent discharge
Umbilical hernia with ulceration	3	10.34%	Sero-purulent discharge
Umbilical abscess	2	6.89%	Pus discharge
Vitelline umbilical sinus	2	6.89%	Serous discharge
Recurrent folliculitis	2	6.89%	Inflammation & Pus discharge
Advanced gallbladder carcinoma	1	3.44%	Growth with sero-sanguinous discharge
Pilonidal sinus	1	3.44%	Itching & discharge

All the patients of urachal anomalies (15) were treated by complete excision of tracts with a slip of the dome of the bladder [FIGURE 1]. The dome of the bladder was repaired in two layers.

**Figure 2**

FIGURE 1: Intra-operative photograph showing the patent urachal tract (held by finger) to be excised



Post laparoscopic surgery umbilical discharge patients were treated by exploration of tract and removal of foreign body (suture material in two patients and fragmented gall stone in one patient). Biopsy was taken. In patients with umbilical hernia and ulceration preoperative eradication of infection with antibiotics after culture and sensitivity testing and followed by hernia repair was done. Excision of sinus tract with repair of defect was done in vitelloumbilical sinus. In recurrent folliculitis patients, local cleaning and dressing was done. Pilonidal sinus was managed by excision. In the patient who had advanced gall bladder carcinoma, biopsy was done to confirm diagnosis. CECT abdomen confirmed diagnosis. The patient was inoperable (stage 4) and was managed by palliative radio- and chemotherapy (TABLE 2).

**Figure 3**

TABLE 2: Patients were treated as follows:

Sl.No.	Diagnosis	Treatment
1.	Urachal anomalies (15 patients)	All patients were treated by complete excision of tracts with a slip of the dome of the bladder and the dome of bladder was repaired in 2 layers
2.	Post laparoscopic surgery umbilical discharge (3 patients)	Exploration of tract & removal of foreign body (suture material in two patients and fragmented gall stone in one patient) +/- biopsy.
3.	Umbilical hernia with ulceration (3 patients)	Pre-operative eradication of infection f/b repair of hernia.
4.	Umbilical abscess (2 patients)	Treated by I&D f/b broad spectrum antibiotic coverage.
5.	Vitelline umbilical sinus	Excision of sinus tract and repair of defect
6.	Recurrent folliculitis	Local C&D of wound +/- I&D.
7.	Advanced gallbladder carcinoma	Biopsy for confirmation of diagnosis, CT/USG of the abdomen to locate cause f/b chemo- & radiotherapy as palliative t/t.
8.	Pilonidal sinus	Excision of tract with healing by secondary intention.

The most common organism isolated by culture and sensitivity was *S. aureus* followed by *E. coli*.

## **DISCUSSION**

As far as umbilical discharge is concerned, in adults only a few studies have been conducted. Umbilical discharge in adults is rare but can be quite alarming. It may be caused by various congenital or acquired conditions. Patients with embryonal anomalies may present with umbilical discharge<sup>1</sup>. However, the most common causes of umbilical discharge in adults are acquired conditions, such as pilonidal sinus disease<sup>2,3</sup>, infection due to hair tufts and foreign bodies<sup>4</sup>, and non-specific acute and chronic inflammation and abscess of the umbilicus.<sup>5</sup> Very rare causes include endometriosis and metastatic carcinoma.<sup>4</sup>

Urachal anomalies are rare. The incidence of congenital urachal abnormalities detected at birth or diagnosed early during infancy has been reported as fewer than two cases per 300,000 admissions to a pediatric hospital.<sup>6</sup> Approximately 40% of cases were symptomatic and among these, 80% (i.e. 32% of total) were symptomatic within the first 2 years of life.<sup>7</sup> Reported cases of urachal disease in adults are less common than reported cases of congenital urachal disease in infants. Since the first well-documented report of a urachal cyst in 1882, in fact, fewer than 200 cases of urachal disease have been reported in adults.<sup>8</sup> The age of adults at presentation has most commonly been between 20 and 40 years, with a male-to-female ratio of 2:1.

The anatomic relationships of the urachus are important in determining the signs and symptoms of disease<sup>7,9</sup>. The embryonic disc elongates and bulges towards the amnion and the two ends (head and tail) come close together and it encloses a part of the yolk sac within the endodermal lining of the disc. This part of the yolk sac forms the gut (foregut, midgut and hindgut). The narrow part of the yolk sac between two ends of endoderm forms the vitello-intestinal duct and the rest of the yolk sac disappears<sup>10</sup>.

The allantois begins as a projection of the endodermal layer of the embryonic disc into the extraembryonic mesoderm. Later, as the disc elongates, this allantois fuses into the hindgut and projects towards the umbilical cord.

Normally, both vitello-intestinal duct (which connects gut to umbilicus) and urachus (which connects urinary bladder to umbilicus) get obliterated. The urachus and the bilateral umbilical arteries are within a pyramid-shaped fascial space (space of Retzius) that is separate from the peritoneal cavity and extends from the umbilicus to the bladder dome.<sup>11</sup>

Depending upon which portion of urachus remains patent,

urachal anomalies can manifest as

1. Patent urachus
2. Urachal cyst
3. Umbilical urachal sinus
4. Vesico-urachal diverticulum

Similarly, a vitellointestinal duct developmental anomaly can manifest as

1. Vitelline fistula
2. Vitelline cyst
3. Vitelline cord Sinus
4. Meckel's diverticulum
5. Meckel's diverticulum with vitelline cord
6. Vitelline umbilical sinus

Previous studies indicate that urachal cyst is the most common urachal anomaly in adults.<sup>12</sup> In our study, patent urachus is the most common [TABLE 1]. In older patients, vesico-urachal diverticula may present as urinary stones and adenocarcinomas.<sup>12</sup> There is a possibility that concomitant congenital or acquired bladder outlet obstruction may predispose to symptomatic urachal disease.<sup>13</sup> Preceding bladder bacteriuria may also result in retrograde urachal infection. Urachal cysts present in a variety of clinical presentations including recurrent urinary tract infections, macroscopic hematuria, hypogastric midline tenderness often associated with a mass, umbilical discharge, and even peritonitis. A pyo-urachus can then establish communication with the umbilicus, bladder and bowel or rupture intraperitoneally.<sup>14</sup>

Infected vesico-urachal diverticula most commonly are accompanied by symptoms of acute or recurrent urinary tract infection. Urethral discharge, pneumaturia, urgency progressing to strangury, and a palpable suprapubic mass may also be noted.

In umbilical abscess, recurrent folliculitis and pilonidal sinus lack of personal hygiene plays a major causative factor.

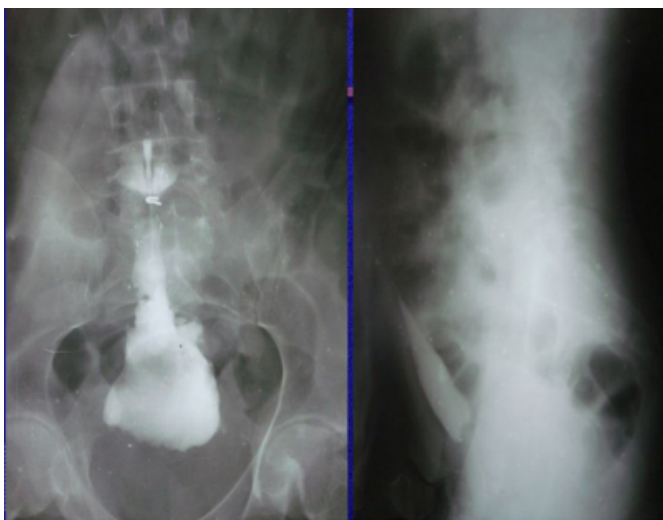
Post laparoscopic port site infections are on the rise now with the increased number of laparoscopic procedures. Umbilical port site infections are the most common of all

port site infections. As the horizon of laproscopic surgery increased in the patients with abdominal malignancies, the incidence of port site metastasis was found to be 0.5-13%<sup>15</sup>. In our study, we reported a case of advanced adenocarcinoma of the gall bladder presenting with umbilical discharge (3.44%).

Retrograde cystography/MCU is helpful in characterizing bladder patency<sup>16</sup> [FIGURE 2].

**Figure 4**

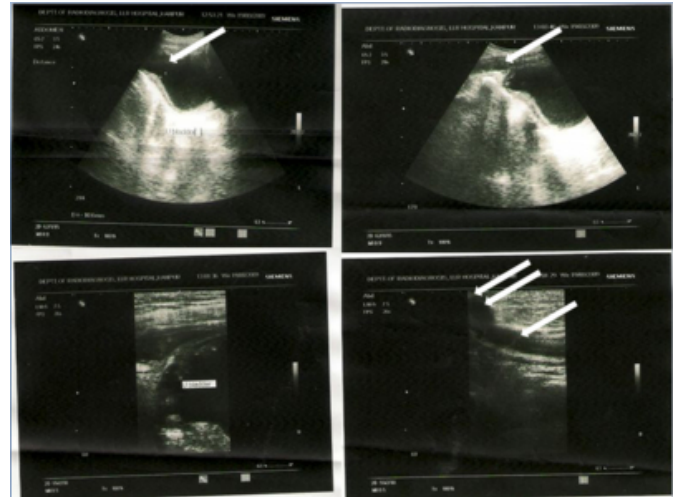
FIGURE 2: Sinogram (antero-posterior and lateral views) showing a patent tract (single arrow) from umbilicus to bladder (double arrows)



Sinography is particularly useful in diagnosing sinuses.<sup>17</sup> Ultrasound is more helpful in diagnosing cysts<sup>18</sup> [FIGURE 3].

**Figure 5**

FIGURE 3: Ultrasonogram showing a tubular tract (single arrow) arising from the dome of the bladder (upper two images). The lower two high-frequency USG images show the tract (single arrow) extending from umbilicus (double arrows) to urinary bladder



Recent studies reveal that CT scan is more accurate in diagnosing all types of urachal anomalies.<sup>19</sup>

A staged approach to therapy, with initial medical management followed by delayed definitive surgical excision, appears appropriate for most patients. Surgical exploration is necessary for confirmation of the diagnosis and of the need for excisional therapy

**CONCLUSION**

Umbilical discharge in adults is a very rare finding. In our study of 5 years duration, conducted at three centers on umbilical discharge in adults, urachal anomalies (51.72%) were the most common causes followed by post laproscopic port site infection (10.34%) and umbilical hernia with ulceration (10.34%).

Umbilical discharge in any age should be swiftly evaluated. Failure in diagnosis may result in increased morbidity and poor outcome.

USG, CT scan, sinogram and fistulogram are very sensitive in detecting urachal remnants, but CTscan maintains a pivotal role.

A very sincere and a team approach with involvement of various departments like surgery, pathology, microbiology and radiodiagnosis is a must for favorable outcome.

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