CLINICAL CASE

Urachal actinomycosis: differential diagnosis of a tumor

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KEYWORDS
Actinomycosis, urachus, pseudotumor, Mexico.

Abstract We present herein the case of a 46-year-old woman with a palpable suprapubic tumor, weight loss, general health status deterioration, and episodes of gross hematuria. Imaging studies showed a tumor that was dependent on the bladder dome, with periumbilical abdominal wall involvement. She underwent partial cystectomy with en bloc resection of the abdominal wall and omphalectomy because the lesion was thought to be a carcinoma. The pathology study reported urachal actinomycosis, and the patient was managed in the immediate postoperative period with cephalosporins. Her progression was satisfactory.

The presence of a tumor involving the bladder dome and the urachus obliges us to consider adenocarcinoma as the primary diagnostic possibility. However, we must take into account the likelihood of an infectious process in a non-obliterated urachus. Urachal actinomycosis is a rare entity and there are few reports on it in the medical literature. Because of the xanthogranulomatous reaction it creates, it can simulate a tumor.

PALABRAS CLAVE
Actinomicosis, uraco, pseudotumor, México.

Resumen Presentamos el caso de una paciente de 46 años de edad, con tumoración suprapúbica palpable, pérdida de peso, ataque al estado general y episodios de hematuria macroscópica. Los estudios de imagen demostraron una tumoración dependiente del domo vesical, con involucro de la pared abdominal periumbilical. Fue sometida a cistectomía parcial.

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con resección en bloque de pared abdominal y onfalectomía, pensando en un carcinoma. El estudio de patología reporta una actinomicosis del uraco. Durante el posoperatorio inmediato se manejó con cefalosporina, teniendo una evolución satisfactoria. La presencia de una tumoración que involucra el domo de la vejiga y el uraco nos obliga a pensar como primera posibilidad diagnóstica en un adenocarcinoma, sin embargo, debemos tomar en cuenta la posibilidad de que se trate de un proceso infeccioso desarrollado en un uraco no obliterado. La actinomicosis del uraco es una entidad rara, de la que existen pocos reportes en la literatura médica. Por otra parte, dada la reacción xantogranulomatosa que genera, puede simular una neoplasia.

**Introduction**

In the presence of a “tumor” in the bladder dome with probable urachal involvement, the first consideration should always be adenocarcinoma, given that the outcome of these tumors is dependent on their early detection and complete lesion resection. However, we must also take into account the infectious processes when there is a partial or total permeable urachal persistence. Urachal actinimycosis can simulate a tumor due to the fact that it produces an

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**Figure 1** Uro-CT with 3D reconstruction; the lesion involves the bladder and urachus.
important inflammatory reaction and even when the *Actinomyces Israelii* is sensitive to penicillin derivatives, surgical resection of the xanthogranulomatous process in a non-obliterated urachus should be performed.

We present a new case herein of urachal actinomycosis that simulated a carcinoma.

**Case presentation**

A 46-year-old woman with a past medical history of type 2 diabetes of 5-year progression was admitted to the emergency service presenting with a solid, painful, 7 x 8 cm tumor located in the hypogastrium and periumbilical hyperemia. Upon admittance she complained of lower irritative urinary syndrome characterized by frequent and urgent micturition and an isolated incidence of gross hematuria, predominantly nighttime fever that was not measured, and 10 kg weight loss in the past month. Abdominopelvic ultrasound sonography (USG) showed a tumor that was dependent on the bladder dome and infiltrating the abdominal wall. Computed tomography (CT) scan identified a solid, cystic tumor that was dependent on the bladder roof, infiltrating the abdominal wall at the level of the umbilicus (Figure 1). Cystoscopy showed a 3 x 4 cm solid lesion in the bladder peritoneum with important perilesional bullous edema. Bladder biopsies reported *cystitis glandularis*. With the probable diagnosis of a urachal tumor “mucinous cystadenocarcinoma”, the patient underwent partial cystectomy with *en bloc* resection of the urachus and the abdominal wall, as well as omphalectomy (Figures 2 to 4).

The diagnostic histopathologic study reported a xanthogranulomatous reaction of the urachus due to actinomycosis, with the classic “sulfur granules”, *cystitis glandularis*, and focal peritonitis (Figure 5). During the immediate postoperative period the patient was managed with 1 g ceftriaxone IV every 12 hours for five days and then was given 500 mg cefuroxime every 12 hours for 15 days.

![Figure 2](image2.jpg)  **Figure 2** Tumor involving the umbilicus, urachus, peritoneum, omentum, and bladder.

![Figure 3](image3.jpg)  **Figure 3** *En bloc* tumor resection with partial cystectomy.

![Figure 4](image4.jpg)  **Figure 4** A) Final surgical result, and B) macro surgical specimen.
Urachal actinomycosis is an extremely rare disease, with very few reports in the international literature. It can be easily confused with adenocarcinoma, especially when the infectious process has been sealed, and the exit of purulent matter through the umbilicus is not apparent, causing a xanthogranulomatous inflammatory reaction in the entire tract, involving the bladder, the intra/ extraperitoneal perivesical space, and the abdominal wall, simulating a tumor.

Patients with this pathology clinically present a painful tumor at the midline and infraumbilical line. There can be hyperemia of the region, weight loss, asthenia, and hyperthermia, lower irritative urinary syndrome, and hematuria. USG, CT, and nuclear magnetic resonance (NMR) images are not conclusive enough to favor the diagnostic qualities of one over the other. Cystoscopy at times cannot define whether tumors are dependent on the bladder or are caused by extrinsic compression in the bladder dome with an important inflammatory reaction of the bladder mucosa. Bladder biopsies report cystitis and the absence of neoplastic cells.14,15

In our case the CT images led us to contemplate a tumor as the first diagnostic possibility and en bloc resection of the lesion was carried out.

In relation to treatment, if the urachus is involved, even when Actinomyces Israelii is sensitive to penicillin and its derivatives, it is necessary to resect the xanthogranulomatous tissue and the persistent urachal defect, as well as to administer cephalosporins.

Outcome is generally favorable after complete surgical resection of the lesion and the use of antimicrobial agents.

**Conflict of Interest**
The authors declare that there is no conflict of interest.

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