Scrotal mass in an inguino-scrotal ureteral hernia

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Summary

Objectives. To present the clinical case of an inguino-scrotal hernia of the ureter, complicated by the presence of a urothelial carcinoma brought to our notice as painful scrotal swelling.

Materials and methods. The patient is an 85-year-old male presenting an inveterate right inguinal hernia with acute and worsening scrotal pain. Upon examination of the hemiscrotum an inguinal hernia was found, associated with an irreducible, hard, painful mass, separate from the main part of the hernia, with didymis and epididymis not palpable. Neither signs nor symptoms of intestinal occlusion or peritonism were evident, nor were any urinary disorders reported. The patient was subjected to first-grade diagnostic examinations such as scrotal and renal ultrasonography and second-grade investigations including an abdominal-pelvic Magnetic Resonance Imaging, an intravenous urography and right-sided ascending pyelography. These imaging techniques gave the grounds for suspecting a right inguino-scrotal hernia associated with neoplasm of the interscrotal tract of the herniated ureter.

Results. The patient underwent a surgical operation of right ureteral resection, vesical reimplantation and right inguinal herniorrhaphy. A right-side iliac/obturator lymphadenectomy was performed. The final results of the histological examination were as follows: urothelial papillary carcinoma G3, without metastases.

Conclusions. Ureteral hernias are rare and to date no cases of neoplasia originating from the herniated tract of the urinary DUCT have been described. The diagnostic course of the painful scrotal masses must nevertheless include the assessment of a possible presence of an inguino-scrotal hernia of the ureter as well as the chance of there being a neoplasm originating from the hernia. The use of imaging techniques, permitting the examination of the uro-genital apparatus, has lead to the definition of such rare pathologies, thus furnishing a contribution to differential diagnosis of painful scrotal masses.

Introduction

The inguino-scrotal hernia of the ureter is a rare pathological phenomenon, there being about 14 cases reported in literature ¹. The inguino-scrotal hernia of the bladder is more frequent ². To date only 8 cases of neoplasm originating from a herniated bladder have been described, while currently no case of neoplasm deriving from a herniated ureter has been reported.

The aim of this study is to present a case of urothelial carcinoma developing in the intrascrotal portion of a herniated ureter, in a patient...
with a right-side inguinal hernia, which came to our notice due to manifestation of acute scrotum.

**Materials and methods**
A 85 year-old male patient presented with a right-side inveterate inguinal hernia, following the manifestation of worsening scrotal pain on the right side. In the case-history arterial hypertension emerged, for which the patient was being treated medically, and a trans-vesical adenomectomy for prostatic hypertrophy performed ten years earlier.

During examination of the right hemiscrotum, an irreducible inguinal hernia was found with tympanic resonance on percussion, to which a hard, non-reducible painful mass was associated, apparently with no correlation to the rest of the hernia content. The right didymis and epididymis did not appear to be identifiable from a semioiological viewpoint. The left hemiscrotum appeared in normal conditions. The examination of the abdomen did not reveal signs of peritonism, while peristalsis and the intestinal canalization were in the norm. The patient did not report fever, haematuria or dysuria in the days preceding the medical examination. Creatinine levels were found to be normal.

In order to clarify the nature of the contents of the hernia and the palpable mass of the right hemiscrotum, we performed an urgent scrotal ultrasound which revealed the presence of herniated intestinal loops in the right hemiscrotum and an elongated formation parallel to the didymis, inside which emerged a dyshomogeneous neoformation about 2 cm long, vascularised on the Doppler, corresponding to the mass found semioitically.

The renal ultrasound revealed a right renal ptosis and 1st-2nd grade homolateral hydronephrosis. The patient then underwent an abdominal-pelvic Magnetic Resonance Imaging (MRI) which evidenced an inguino-scrotal hernia of the right ureter and confirmed the presence of the neoformation found in the ultrasound that seemed to originate from the intra-

![Figure 1. Urographical images. a. The image shows right-side renal ptosis and hydronephrosis. b. Detail of the intrascrotal tract of the right herniated ureter.](image-url)
scrotal tract of the herniated ureter. We then carried out an intravenous urography which confirmed the right renal ptosis, the inguino-scrotal hernia of the right ureter and the presence of hydronephrosis. A defect in canalization of the intrascrotal tract of the herniated ureter was also evidenced (Fig. 1a, b).

Lastly the patient was subjected to a right-side ascending pyelography which excluded the presence of opaque formations suggestive of calculi, and identified a filling defect manifesting a characteristic “goblet sign” and then the oblong intrascrotal tract of the herniated ureter. Hydronephrosis was found above the filling defect (Fig. 2a, b).

The patient had selective lavage cytology of the right ureter with negative results. Despite the negative results of the cytological tests, the imaging techniques nevertheless clearly indicated the neoplastic lesion of the inguino-scrotal tract of the ureter. As such, we decided to proceed with surgery.

Figure 2. Ascending pyelography. a) Defective opacification of interscrotal tract of the herniated ureter during injection of contrast agent. b) Detail of filling defect in the herniated tract of the ureter.

Results
Gaining access by means of the right pararectal approach (Leriche technique) as far as the inguinal canal, an extended right ureteral resection was carried out with vesical reimplantation (Paquin’s technique) and a right inguinal hernioplasty with plug and prosthetic mesh (Lichtenstein’s method). A right iliac/obturator lymphadenectomy was also carried out. Post-operative conditions were in the norm. The definitive histological results were the following: papilliferous urothelial carcinoma of the right distal ureter, grade G3, negative margins of resection and no lymphnodal metastases. During the follow-up phase, the patient showed neither signs nor symptoms that the oncological illness was progressing.

Discussion
The inguino-scrotal hernia of the ureter, of which there exist two anatomical types, is very rare. Currently in literature there are no cases reported of neoplasia regarding the intrascrotal tract of a herniated ureter. Ureteral inguino-scrotal hernias do not present specific symptoms and often the diagnosis is incidental. They may come to light, for example, during the examination of a hydronephrosis in a patient with a diagnosed inguinal hernia. Extra-peritoneal variations of these ureteral hernias may be exposed during investigations for a suspected varicocele. At times the diagnosis may be made during surgical operations of herniorrhaphy.

In contrast with our clinical case presented here, in literature there are no cases described of inguino-scrotal hernias coming to light through manifestation of acute scrotum. In clinical practice, painful scrotal masses are generally secondary to infective pathologies (epididymo-orchitis), or to testicular and extratesticular neoplasms (funiculus, tunica vaginalis etc.), to rare tumours of the epididymis, to complicated cysts of the epididymis and didymis, or to testicular haematomas and complicated inguinal hernias. In the patient of the study presented here, the painful scrotal mass was secondary to a rare urothelial carcinoma that had developed into an inguino-scrotal hernia of the ureter. In this case, the first-grade diagnostic technique is that of the ultrasonography. In inguinal hernias, the manifestation of homolateral hydronephrosis and of anatomical anomalies of the urinary apparatus emerging from the ultrasound should arouse suspicion of herniation of the ureter. The presence of irreducible extratesticular painful scrotal mass, as in the case of our patient, lead us to carry out second-grade investigations such as Computed...
Tomographi (CT) scan, MRI, urography and ascending pyelography. These diagnostic methods permit better visualization of the herniated ureter and of any eventual neoformations originating from it. Urinary cytological tests performed by means of irrigation with a small catheter did not contribute to defining the diagnosis of our clinical case.

In scientific literature the necessity of treating surgically inguino-scrotal hernias of the ureter is emphasized, in order to avoid complications of obstruction of the same. In the case of our patient, the decision to intervene surgically was reinforced by the presence of a neoplastic pathology concomitant with the ureteral hernia.

Conclusions
Inguino-scrotal hernias of the ureter are rare and neoplasias originating from the intrascrotal tract of a herniated ureter have not yet been described in literature. The diagnostic course of painful scrotal masses must in any case assess the eventual presence of an inguino-scrotal hernia of the ureter and consider the possibility of an associated oncological pathology. The manifestation of hydronephrosis and renal ptosis contributes to reinforcing this clinical suspicion. The ultrasound must be accompanied by diagnostic techniques which investigate the bladder and the ureter such as CT scan, urography and ascending pyelography. Correct interpretation of these investigative methods is fundamental in the differential diagnosis of painful scrotal masses and in the programming of the right therapeutic course. In consideration of this, the presence of a uro-andrologist in Emergency Units and Casualty Departments is becoming more and more advisable.

References