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Case Report

Surgery Section

Right Inguinoscrotal Swelling Revealing Classic Seminoma: A Case Report

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ABSTRACT

There are many causes of inguinoscrotal swelling, but common causes include hydrocele, tumours, and infections. The presented case involves a 40-year-old male who presented with an inguinoscrotal mass on the right side that developed over the past year, accompanied by painful episodes. Physical examination revealed a 5×6 cm tense swelling with positive transillumination. Investigations showed a right-sided chronic hydrocele, funiculitis, varicocele, and epididymo-orchitis. Dissection for the hydrocele at the onset led to the identification of a right testicular mass, necessitating a high inguinal orchidectomy. Histopathological examination confirmed classic seminoma with capsular and lymphovascular invasion. This case highlights the diagnostic difficulty of inguinoscrotal swellings, particularly when hydrocele obscures an underlying tumour. The unexpected intraoperative findings underscore the importance of flexibility in surgical planning to address potential malignancy concerns. The report emphasises the necessity of a proper histopathological assessment to determine the nature of the testicular mass for appropriate management in future cases.

Keywords: Epididymo-orchitis, Funiculitis, Inguinoscrotal swelling, Malignancy, Varicocele

CASE REPORT

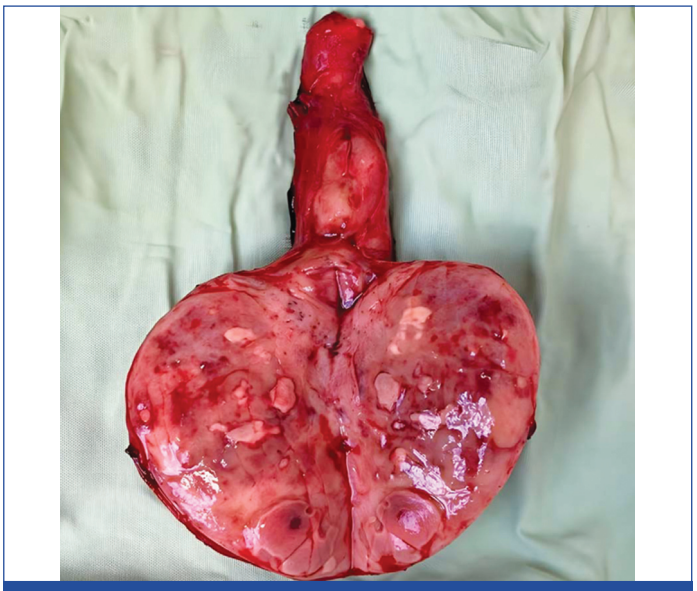
A 40-year-old man presented to the Outpatient Department (OPD) with a chief complaint of right-sided inguinoscrotal swelling that had been present for the past year. The swelling was insidious in onset and gradually increased in size from 2×2 cm to 5×6 cm, with occasional pain but no specific factors that could trigger or alleviate the discomfort. There was no history of fever, trauma, bowel or bladder complaints, bleeding per rectum, nausea, vomiting, chronic cough, or cold symptoms. The patient had a history of chronic alcoholism, reporting alcohol consumption for 20 years at a rate of around 8 drinks (approximately 142 mL) per day. He mentioned a reduction in alcohol use frequency, currently consuming 4 standard drinks daily. He was not hypertensive, diabetic, asthmatic, or suffering from tuberculosis.

During the initial assessment, a tense 5×6 cm swelling was noted in the right inguinoscrotal region, with overlying skin that was neither reducible nor pinched. Although primary surgical exploration revealed a right testicular tumour, the right testis was not palpable, and transillumination of the scrotal swelling was positive. There were no abnormalities in the systemic examination; vital signs were stable: pulse 80/min, BP 124/84 mmHg, respiratory rate 14/min, and afebrile temperature. A digital rectal examination revealed grade 2 prostatomegaly, but no hemorrhoids, fissures, or any abnormalities in the tone of the anus were found. There were no skin discolorations, dilated veins, or scar marks over the swelling, and no cough impulse was observed.

The patient underwent routine investigations, including blood counts and coagulation profiles, which were largely within normal limits, except for low hemoglobin levels and elevated liver enzymes. An ultrasound of the inguinoscrotal region revealed right-sided chronic hydrocele, funiculitis, right-sided varicocele, epididymo-orchitis, and bilaterally enlarged seminal vesicles. An abdominal ultrasound noted features compatible with the possibility of a pancreatic pseudocyst and a prostatic cyst.

The surgical procedure began with the patient being placed under spinal anesthesia, followed by standard aseptic preparations, including the painting and draping of the surgical area to ensure sterility. Next, a vertical incision was made about 2 cm lateral to the median raphe on the right side of the scrotum after the hydrocele had been secured. Blunt dissection was performed to reach the deeper layer until the hydrocele sac, which appeared as a glistening structure, was gently separated from the surrounding tissues. The sac was delivered out of the scrotum, and a small stab incision was made over its most prominent part, allowing approximately 50 mL of straw-colored, clear fluid to be drained.

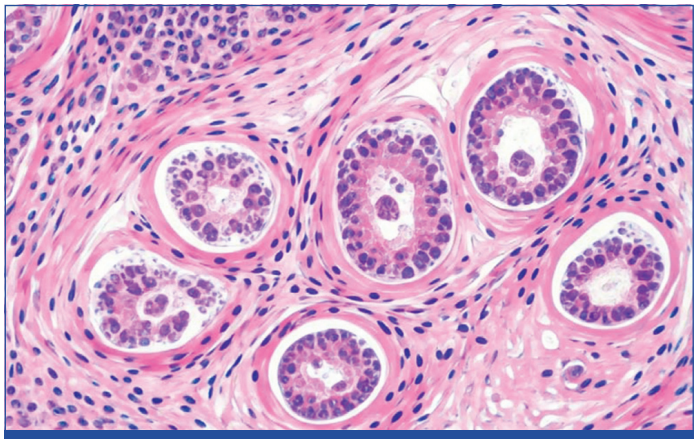
Upon visualising the testis after drainage, it initially appeared healthy and viable. The next step involved everting the hydrocele sac by turning it inside out to prevent fluid reaccumulation. It was sutured using a continuous interlocking method with Vicryl 2-0 suture material. However, upon closer examination, a testicular mass was discovered, prompting the decision to perform a right high inguinal orchidectomy. This involved excising the testis and all surrounding tissue via the inguinal canal to minimise the likelihood of malignancy. For the spermatocele, the spermatic cord was clamped, ligated, and divided before the excision of the testis. The excised specimen of the testis and surrounding structures is shown in [Table/Fig-1].



[Table/Fig-1]: The excised specimen of testis and surrounding structure.

After the orchidectomy was completed, care was taken to control hemorrhage and ensure hemostasis. The layers were then sutured;

the scrotal flap was rearranged anatomically, and the skin layers were sutured using Ethilon 2-0 sutures. A sterile gauze dressing was applied to cover the wound site to reduce postoperative pain and inflammation, and scrotal support was provided to minimise swelling and discomfort. No postoperative adverse effects were observed following the surgical procedure, and the patient was moved out of the operating theatre. After surgery, he was placed in the Surgical Intensive Care Unit (SICU) and later transferred to the ward for further recovery. There was a total blood loss of 700 mL during the surgery, which was managed with 2 units of blood transfusion. The right-sided orchidectomy specimen measured 5×6 cm. Upon sectioning, several poorly circumscribed, soft, greyish-white masses were noted within the body of the tumour, as well as evidence of a necrotic area measuring approximately 2×2 cm. At the lower pole of the testis, the epididymis was identified, measuring 2×2 cm, and showing gross involvement upon sectioning. The spermatic cord measured 7.5 cm, and serial sectioning revealed greyish-white, homogeneous areas measuring 3×2×1.5 cm at the lip of the cord. Microscopically, sections from the tumour demonstrated the light microscopic profile of classic seminoma. Capsule invasion was noted, the tumour showed necrosis, and there was invasion of the perivascular fat. Lymphovascular invasion was present, but perineural invasion was not observed See [Table/Fig-2].



[Table/Fig-2]: Histopathology sections of the tumour demonstrated the microscopical profile of the classic seminoma showing fibrous septa, sheets of lobules.

It was after the pathological confirmation of a diagnosis of classic seminoma that the patient was referred for further oncological evaluations and management. The multidisciplinary team for management included specialists in oncology, radiotherapy, and urology. Based on the size and capsule invasion of the tumour, it was suggested to add adjuvant radiotherapy for the para-aortic lymph nodes. Additionally, the patient was educated regarding follow-up care and scheduling: tumour marker checks at three-month intervals and imaging and clinical evaluations of the abdomen and pelvis at six-month intervals during the first year to assess for any signs of metastasis or recurrence. However, after providing informed consent, the patient rejected radiotherapy and systemic chemotherapy due to personal reasons. He accepted follow-up appointments for tumour marker checks and imaging, although compliance with the schedule was irregular. At a follow-up six months later, the patient was asymptomatic, with no clinical or imaging features of recurrence observed. Emphasis remained on continuing follow-ups and promoting health improvements, including alcohol cessation and dietary advice.

DISCUSSION

Inguinoscrotal swelling is an enlargement or mass involving the inguinal (groin) region and the scrotum. This swelling can have many causes, such as hernias (including inguinal hernia), hydrocele (fluid accumulation), infection, or tumours [1,2]. A right testicular tumour is a neoplastic growth of tissue in the right testis, which can be benign or malignant [3]. The majority of testicular tumours are believed to arise from germ cells involved in sperm production [4]. The primary symptoms may include simple enlargement of the testicle, slight pain, or a sensation of fullness or weight in the area of the tumour [3,4].

A hydrocele is a painless condition of idiopathic etiology that causes gradual enlargement of the scrotum on the affected side due to the accumulation of fluid in the tunica vaginalis, persisting for more than three months [5,6]. Other conditions that can cause swelling of the spermatic cord and scrotum, potentially impacting fertility, include funiculitis, right-sided varicocele, and epididymo-orchitis [7,8].

Orchidectomy, or orchiectomy, is a surgical procedure that involves the removal of one or both testicles for conditions such as testicular cancer, acute trauma (such as torsion), chronic pain, or when the patient is receiving hormonal treatment for prostate cancer [9]. Inguinal orchidectomy involves excising the testicle and spermatic cord through an inguinal incision to avoid disturbing the scrotum and thus reduce the likelihood of spreading nearby cancer cells [9,10]. A spermatocele is a congenital or acquired benign cystic dilation of the epididymal duct, containing milky or clear fluid with or without spermatozoa [1,5].

The case described by Symeonidis et al., features a 24-year-old male with a mildly enlarged left hemi-scrotum and a non-palpable testis, diagnosed with a complex hydrocele on scrotal ultrasound. However, surgical exploration revealed a multicystic testicular tumour, which led to a left orchiectomy. Histopathology identified a mixed germ cell tumour with components of cystic teratoma, Sertoli cell tumour, and Intratubular Germ Cell Neoplasia Unclassified (IGCNU). Following surgery and a multidisciplinary discussion, the patient received prophylactic chemotherapy, with no recurrence at a six-month follow-up [11]. In contrast, the presented case involves a 40-year-old man with a gradually enlarging right inguinoscrotal swelling, occasional pain, and chronic alcoholism. Both cases involve scrotal discomfort and a testicular mass, but they differ in terms of age, location, presentation, and clinical findings.

The case reported by Albino et al., describes a 64-year-old man with a left-sided hydrocele that had progressively enlarged over 30 years. Although it caused minimal discomfort, this condition led to the identification of a paratesticular papillary cystadenoma. This mass was later classified as a Papillary Serous Tumour of Low Malignant Potential (PSTLMP), with Müllerian features on histology, prompting a left orchifunicolectomy [12].

The case presented by Sayedin et al., describes a 46-year-old man who presented with weight loss and fatigue and was later found to have microcytic hypochromic anemia and retroperitoneal lymphadenopathy causing right hydronephrosis. Imaging and a biopsy confirmed a metastatic germ cell tumour, leading to further assessment with ultrasound, which revealed right testicular enlargement with features suggestive of malignancy. Tumour markers indicated elevated β-HCG and LDH levels, while AFP was within normal limits. A subsequent inguinal orchidectomy confirmed seminoma with lymphovascular invasion, and the patient was staged as T2N3M0 S2. Chemotherapy was recommended, but unfortunately, he passed away before treatment initiation [13]. The two cases share similarities, such as the presentation of scrotal swelling and final surgical intervention, but differ significantly in diagnostic complexity, the presence of metastasis, and patient outcomes.

In the case reported by Asutkar et al., a 72-year-old man with a 15-year history of scrotal swelling and buried penis was found to have a large, hard right-sided hydrocele with gross calcification and necrosis of the right testis. Ultrasound confirmed a large bilateral hydrocele, with negative transillumination and a positive folding test. The patient underwent right hydrocelectomy and orchidectomy under spinal anesthesia. During surgery, dirty white fluid was drained, and the calcified hydrocele sac and necrotic testis were

Aspect	Presented case	Case by Symeonidis et al., (11)	Case by Albino et al., (12)	Case by Sayedin et al., (13)	Case by Asutkar et al., (14)	Case by Ben Kridis et al., (15)	Case by Mahalik et al., (16)
Demographics	40-year-old Indian male	24-year-old Greece male	64-year-old Italian male	46-year-old male from United Kingdom	72-year-old Indian male	61-year-old male from Tunisia	7-year-old Indian boy
Clinical presentation	Gradual right inguinoscrotal swelling with occasional pain	Mildly enlarged left hemi-scrotum, non-palpable testis	Left-sided hydrocele progressively enlarged over 30 years	Right testicular enlargement with weight loss, fatigue	Large, hard right hydrocele with calcification and necrosis	Painless left testicular swelling with gynecomastia	Painless progressive left scrotal swelling
Imaging studies	Chronic hydrocele, funiculitis, varicocele, and epididymo-orchitis	Complex hydrocele on ultrasound	Enlarged testis with paratesticular papillary cystadenoma	Retroperitoneal lymphadenopathy and right hydronephrosis	Bilateral hydrocele with gross calcification	Enlarged hypoechogenic testis	Abnormal left testis with calcifications
Histopathology	Unspecified malignancy; further testing declined by patient	Mixed germ cell tumour: cystic teratoma, Sertoli cell tumour, IGCNU	Papillary Serous Tumour of Low Malignant Potential (PSTLMP)	Seminoma with lymphovascular invasion	Necrotic testis with calcified hydrocele sac	Malignant Leydig cell tumour	Benign mature cystic teratoma
Initial surgical intervention	Right high inguinal orchidectomy	Left orchiectomy	Left orchifunicolectomy	Right inguinal orchidectomy	Right hydrocelectomy and orchidectomy	Left orchidectomy	Left orchidectomy
Postoperative outcomes	Uneventful, except for blood transfusion due to intraoperative loss	No recurrence at 6 months	Asymptomatic; non-urgent management with watchful waiting	Passed away before chemotherapy initiation	Uneventful recovery with mild fever managed by antibiotics	Gynecomastia resolved; no systemic spread	Asymptomatic at 3-month follow-up
Clinical insights	Hydrocele findings masked testicular mass; patient declined further investigations	Multidisciplinary approach led to prophylactic chemotherapy	Non-invasive tumour with Mullerian features managed conservatively	Advanced disease requiring systemic evaluation; poor prognosis	Chronic hydrocele with necrotic testis managed surgically	Hormone-producing tumour with gynecomastia resolved post-surgery	Painless scrotal swelling led to a benign diagnosis

[Table/Fig-3]: Comparative analysis of the present case and cases published in the past.

excised [14]. In both cases, the diagnosis and surgical approaches are similar, but there are differences in age, hydrocele presentation, intraoperative findings, and postoperative recovery.

The case of a 61-year-old male reported by Ben Kridis et al., presented with a painless left testicular swelling and was diagnosed with a Leydig cell tumour characterised by irregular induration, hydrocele, and gynecomastia. His lab results showed elevated estrogen levels, while germ cell markers AFP and β-HCG were within normal limits. Scrotal ultrasound revealed an enlarged, hypoechoic testis, and subsequent left orchidectomy identified a well-circumscribed tumour with histological signs of malignancy, including Reinke crystalloids, high mitotic figures, nuclear atypia, and necrosis. Immunohistochemistry showed positivity for inhibin, calretinin, and Melan A, confirming the diagnosis of Leydig cell tumour. Post-surgery, gynecomastia resolved, and estrogen levels normalised, with no evidence of systemic spread on CT [15]. Both cases involved testicular masses requiring orchidectomy but differed in age, side of the tumour, associated symptoms (gynecomastia versus occasional pain), and histopathological findings, with the case reported by Ben Kridis et al., confirming a malignant Leydig cell tumour, while the presented case lacked definitive malignancy.

In the case described by Mahalik et al., a 7-year-old boy presented with a painless, progressive swelling in the left scrotum, which was initially suspected to be a hydrocele based on clinical examination and transillumination. Ultrasound revealed a left testis with abnormal characteristics, including hypoechoic parenchyma and calcifications, leading to a suspicion of chronic epididymo-orchitis, possibly tuberculous. Surgical intervention involved orchidectomy, which revealed a benign mature cystic teratoma containing all three germ layers [16]. Histopathological examination confirmed the diagnosis, and the child remained asymptomatic at the three-month follow-up [16].

A comparative analysis of the present case and previously published cases is presented in [Table/Fig-3].

CONCLUSION(S)

The case highlights the complications involved in diagnosing inguinoscrotal swellings, particularly in a patient with a chronic hydrocele accompanied by a testicular mass. The progressive increase in the size of the right inguinoscrotal swelling, along with other symptoms such as funiculitis and varicocele, underscores the importance of conducting proper imaging and clinical assessments before subjecting the patient to surgery. In this case, the plan for a right high inguinal orchidectomy became essential when it was noted that the testicular mass was involved. This emphasises the need for intraoperative considerations that may require modifications to the planned surgical approach.

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