

The case of the shrinking testis

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We report the case of a man with idiopathic lymphocytic orchitis (LO) manifested by undifferentiated testicular pain and atrophy. Conventional investigation results were unremarkable. Oral ciprofloxacin only improved the pain temporarily. Scrotal exploration surgery was performed to exclude acute testicular torsion and a biopsy was taken

during surgery for histological examination. Histology revealed severe LO with reduced spermatogenesis. A trial of oral steroids was initially effective but the effect was temporary. Due to chronic pain, he eventually underwent unilateral orchidectomy. Histology confirmed the initial diagnosis of LO. He was pain-free postoperatively. Idiopathic LO is a rarely reported cause of testicular atrophy.

Key Words: chronic pain, fertility, lymphocytes, orchidectomy, orchitis

Introduction

Common differential diagnoses of acute atraumatic scrotal pain in young adults include testicular torsion and epididymo-orchitis. There are, however, other less common causes of acute scrotal pain which should be considered when unusual symptoms or signs such as testicular atrophy are present. It becomes even more intriguing when initial standard investigations fail to diagnose the disease and empirical therapy fails to treat the condition. We report a case of unilateral idiopathic LO manifesting with acute scrotal pain and testicular atrophy. Although rare, it is important to diagnose and appropriately treat this condition early in order to reduce the risk and severity of complications.

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Case report

A 34-year-old man in a monogamous, heterosexual relationship presented with acute left testicular pain 2 days after contracting a common cold from his 5-year-old daughter. He denied having any lower urinary tract symptoms or penile discharge. He received standard Australian childhood vaccinations. On examination, the left testis and epididymis were tender, but normal in consistency. The right testis was unremarkable. Full blood count and electrolyte levels were unremarkable. Urine PCR (Chlamydia trachomatis, Neisseria gonorrhoea and Ureaplasma urealyticum) and urethral swab (Trichomonas vaginalis and aerobic bacteria) were negative. Scrotal ultrasound demonstrated a hypervascular 16.5 mL³ left testis with features of left epididymo-orchitis, Figure 1. His right testis was 15.2 mL³ in volume with no abnormality on ultrasound. Ciprofloxacin 500 mg twice daily was prescribed for 3 weeks and this helped reduce the pain.

He re-presented after 4 weeks complaining of a "shrinking testicle" and chronic severe left testicular pain. The pain regained its intensity after completion of ciprofloxacin therapy. The left testis was clinically smaller and softer than before, with generalized tenderness. The right testis was unchanged. Repeat

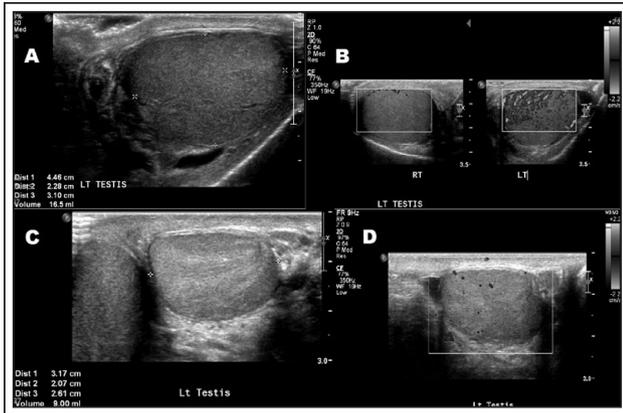


Figure 1. Scrotal ultrasound scans demonstrating the change in left testis size and vascularity. Note: **A** and **B**, initial ultrasound showing left epididymo-orchitis; **C** and **D**, subsequent ultrasound showing a smaller and relatively hypovascular left testis.

scrotal ultrasound measured the left testis at 9.0 mL³ in size. It is also relatively hypovascular than before and in comparison with the right testis (15.0 mL³), Figure 1. A scrotal exploration was performed; there was no testicular torsion or bell-clapper deformity. A biopsy from the left testis was taken and sent fresh for histological examination. The right testis appeared normal. Bilateral orchidopexy was performed.

Histopathology, Figures 2 and 3, revealed moderately severe chronic lymphocytic orchitis with reduced

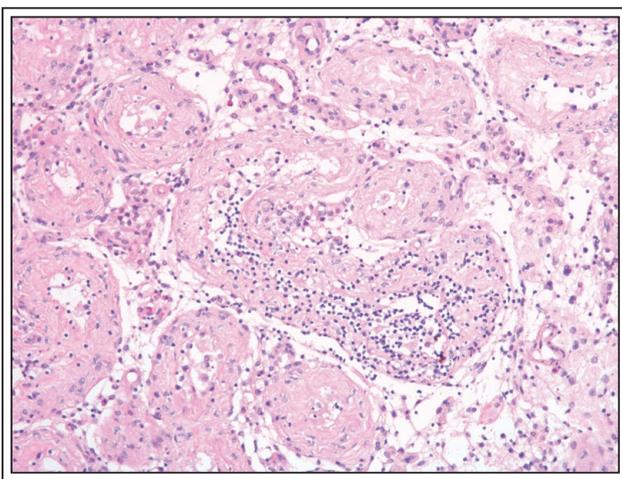


Figure 2. Seminiferous tubule under x20 magnification (hematoxylin and eosin stain) showing lymphocytic infiltration of a seminiferous tubule. Lymphocytes are stained in blue.

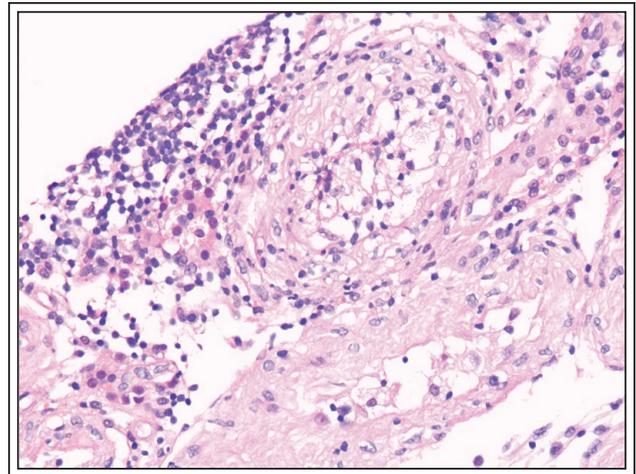


Figure 3. Testicular interstitium under x40 magnification (hematoxylin and eosin stain) showing lymphocytic infiltration of the testicular interstitium. Lymphocytes are stained in blue.

spermatogenesis and marked atrophy of seminiferous tubules. No acute inflammation, granuloma formation, features of vasculitis or ischemic necrosis were seen. There was no evidence of malignancy, bacteria, acid fast bacilli or fungal elements. Hepatitis B and C, HIV, ESR, CRP, ANA, ANCA, ANCA pattern, anti-Ro, complement C3 and C4, mumps IgG and IgM, varicella IgG and IgM, and Ross River virus and Brucella abortus serology were performed to exclude other potential causes. These tests were all normal aside from positive varicella IgG indicating past varicella zoster infection or vaccination. An immunologist prescribed prednisolone 50 mg daily with gradually reduced dosage over 5 weeks. There was initial improvement for 2 weeks but the pain recurred subsequently. He was then managed by a pain specialist; he tried tramadol, oxycodone, tapentadol and pregabalin but these medications did not control his pain adequately. After 6 months, he consented for left orchidectomy due to chronic pain. Histopathology of the left testis revealed a 45 mm x 30 mm x 30 mm testicle with resolving idiopathic lymphocytic orchitis associated with tubular atrophy and reduced spermatogenesis. Within weeks after the surgery, his pain resolved completely.

Discussion

Idiopathic lymphocytic orchitis was described in one other case report in the medical literature.¹ The presentation described was a firm and tender unilateral testicular mass suspicious of a testicular tumor. A one week course of

oral tetracycline did not improve the testicular swelling and tenderness. Radical unilateral orchidectomy was then performed and he was asymptomatic for 6 years after.¹ Similarly with our patient, the affected testicle was tender and oral antibiotics did not offer permanent symptomatic relief. Neither did oral prednisolone. Orchidectomy was the only method that achieved full relief from the chronic pain. In both cases, histological, microbiological and serological investigations did not reveal a causative agent.¹

Determining the cause of orchitis is not always easy due to the myriad of infectious and non-infectious causes. Common bacterial causes include urinary pathogens (e.g. *Escherichia coli* or *Klebsiella pneumoniae*) and sexually transmitted pathogens (e.g. *Chlamydia trachomatis* or *Neisseria gonorrhoea*). Systemic bacterial infections such as tuberculosis, brucellosis, syphilis and lepromatous leprosy predominantly cause granulomatous orchitis.² Viral infections such as mumps, human immunodeficiency virus (HIV), Epstein-Barr and coxsackie virus may all cause orchitis.² Mumps is the most common cause of viral orchitis in post-pubertal males and is bilateral in up to 65% of cases.² This is an unlikely diagnosis in this case as the patient had mumps vaccinations. Non-infective causes of orchitis include trauma, germ cell tumors, medications and testicular vasculitis.²

Causes of testicular atrophy include previous testicular trauma, undescended testes, endocrine imbalance and steroid use. On ultrasonographic examination, 50% of patients had a significantly reduced volume of the injured testis after blunt scrotal trauma while 20% demonstrated reduced testicular blood flow on color flow Doppler ultrasound.³ In young adults, bilateral and unilateral acquired undescended testes were associated with significantly smaller testes volumes than mean normal values and contralateral testes, respectively ($p < 0.001$).⁴ In addition, testicular volume correlated negatively with FSH and LH levels ($p < 0.0001$) in men with infertility.⁵ Furthermore, increasing use of exogenous steroids was associated with increasing prevalence of testicular atrophy ($p < 0.001$); up to 51% of such users reported testicular atrophy.⁶

The etiology in each case must be identified early for effective treatment. Non-specific orchitis, such as lymphocytic orchitis as in this case, can be treated with glucocorticoids and anti-inflammatory medications. Orchidectomy may be considered, although it is commonly reserved for treatment of idiopathic granulomatous orchitis or unrelenting pain as in this case. Those with bacterial causes are treated with appropriate antibiotics whereas mumps orchitis may be managed conservatively, or occasionally with interferon-2B.²

Conclusion

There are many causes of orchitis and accordingly, various treatment modalities. The difficulty lies in the detection of lesser known causes which can manifest very similarly to the more common causes of orchitis. Idiopathic LO is a rarely reported condition that initially responded well to corticosteroids in this case but subsequently required orchidectomy due to chronic pain. Early diagnosis and management may help reduce the risk of impaired spermatogenesis or infertility. When conventional treatment for more common causes of orchitis fails, urologists may consider a case of idiopathic LO and manage accordingly. □

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