

## Testicular atrophy secondary to a large long standing incarcerated inguinal hernia

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### Abstract

Testicular atrophy is a rare but distressing complication of inguinal hernia repair. Apart from the postsurgical etiology, ischemic orchitis and subsequent testicular atrophy may occur secondary to compression of the testicular vessels by chronically incarcerated hernias. We present a rare case of testicular atrophy secondary to a large long standing incarcerated inguinal hernia of 2-decade duration in a 79-year-old man. Testicular atrophy should be always considered in long standing incarcerated inguinal hernias and patients should be adequately informed of this possibility during the preoperative work-up. Preoperative scrotal ultrasonography can be used to determine testicular status in this specific group of patients.

### Introduction

Testicular atrophy is an uncommon but well recognized complication of inguinal hernia repair.<sup>1</sup> Its reported incidence is 0.5% for primary hernia repair but it may reach 5% for recurrent hernia repair.<sup>1,2</sup> Apart from postsurgical etiology, testicular atrophy may also develop secondary to compression of testicular vessels by an incarcerated hernia especially in the pediatric population.<sup>3-6</sup> Herein we describe a rare case of testicular atrophy that became apparent during a repair for a chronically incarcerated inguinal hernia in a 79-year-old man.

### Case Report

A 79-year-old man presented with a large right-sided inguinoscrotal swelling of 20 years' duration. He stated that an irreducible inguinal hernia was diagnosed 20 years before but as it was minimally symptomatic he refused surgical treatment. However, his symptoms worsened during the previous 2 months. His past medical history was significant for arterial hypertension and coronary heart disease.

On physical examination, a large irreducible non tender right-sided inguinoscrotal hernia was detected. The patient was operated on under spinal anesthesia. After the hernia sac was opened it was found to contain greater omentum only. There were dense adhesions between the omentum and hernia sac that made the removal of the omentum from the scrotum very difficult and laborious. After the omentum was removed from the hernial sac we noted a very hard mass with smooth surface measuring approximately 5×10 cm at its distal end. (Figure 1). Thorough exploration revealed a very small atrophic testicle in the right scrotum. After urological consultation was obtained it was decided not to proceed with orchiectomy. A segment of the omentum containing the hard mass was resected and a mesh plug hernia repair was performed. Histopathological examination revealed that the hard mass measuring 5×13 cm and up to 3.5 cm thick was consistent with dense fibrous tissue in the presence of mild chronic inflammation. The patient had an uncomplicated postoperative course and was discharged home 2 days later. He remains asymptomatic with no evidence of hernia recurrence 23 months after surgery.

### Discussion

Inguinal hernia incarceration occurs in 6-18% of the pediatric patients with congenital inguinal hernias, whereas the incidence of testicular infarction and subsequent testicular atrophy in cases of incarceration ranges from 4-12%.<sup>7</sup> Young infants less than 3 months of age are at higher risk of developing an incarceration.<sup>7</sup> Testicular atrophy is probably the result of restricted testicular blood supply for a considerable time period due to an incarcerated hernia.<sup>8</sup>

In adults, there are not sufficient data reported in the literature regarding the inci-

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dence of testicular atrophy due to chronically incarcerated inguinal hernias. This is likely because chronic incarceration of an inguinal hernia of 2-decade duration, such as in our case, is very rare in the adult population. Beddy *et al.*<sup>9</sup> conducted a prospective study of open and laparoscopic herniorrhaphy of 37 men aged 18-70 years, who underwent doppler ultrasonography and serum testicular hormone analysis. They reported that patients with inguinal hernia can have vascular impedance on the ipsilateral testes. They also found that preoperatively there was a significant elevation in the sonographic resistive index (RI) in the affected hernia side, compared with the normal side. The elevated testicular vascular RI was reversible after hernia repair. They suggested that the elevated RI might be the result of the pressure effect of the hernia due to the obstruction of venous or lymphatic outflow.

In another study Turgut *et al.*<sup>10</sup> performed ultrasonographic examination in 26 patients with unilateral inguinal hernias and found



Figure 1. Intraoperative photographs showing the incarcerated omentum with the hard mass consisted of dense fibrous tissue, at its distal end.

that the mean testicular volume and the mean RI of the intratesticular arteries were significantly higher on the hernia side compared with the contralateral side. These data suggested that testicular blood flow may be impaired due to the intermittent compression effect on the funiculus spermaticus in the inguinal canal.

On the contrary, in another study Munoz Sanchez *et al.*<sup>11</sup> studied testicular-epididymal hemodynamics by ultrasonographic color velocity imaging in 63 hernia patients and concluded that inguinal hernia does not cause significant alterations in the arterial circulation of testes and epididymis. However, all the aforementioned studies<sup>9-11</sup> included patients with primary uncomplicated hernias.

We believe that the excessive compression of the testicular vessels by the large long standing incarcerated hernia likely resulted in the right testicular atrophy in our patient. The possibility of a congenital atrophy was excluded as the patient stated that before the onset of incarceration the testicle was normal in size in the scrotum. The hard mass consisting of dense fibrous tissue which was found at the distal end of protruding omentum was the result of the chronic scrotal incarceration. Preoperative ultrasonography was not performed firstly because it is not the examination of choice in minimally symptomatic long standing inguinal hernias and secondly because testicular atrophy was not considered preoperatively.

## Conclusions

This case highlights the need of considering testicular atrophy in patients presenting with chronically incarcerated inguinal hernias. Patients should be informed of this possibility during the preoperative work-up. Due to the presence of the large inguinoscrotal mass, testicular atrophy becomes clinically evident only during hernia repair. Preoperative scrotal ultrasonography may reveal evidence of the testicular status in this specific group of patients.

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