CASE REPORT

Inguinal canal spermatic cord leiomyoma presenting as an incarcerated inguinal hernia

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SUMMARY

Leiomyoma is a benign neoplasm originating from smooth muscle cells and is most commonly seen in the uterus, followed by the small bowel and oesophagus. We report a rare case of a 41-year-old male patient with a spermatic cord leiomyoma that presented as an inguinal canal mass mimicking an irreducible inguinal hernia without scrotal involvement. This report highlights the rare presentation and workup of an inguinal mass, importance of intraoperative decision making based on operative findings and the significance of postoperative pathology findings.

BACKGROUND

Leiomyoma is a benign neoplasm originating from smooth muscle cells, and as such it can theoretically be found wherever smooth muscles are present in the body. Leiomyoma most commonly occur in the uterus, followed by small bowel and oesophagus. There have been very few reports of leiomyoma arising from the genitourinary system including bladder, epididymis, prostate, testis and penis.^{1–6} Spermatic cord leiomyoma is extremely rare, with only two dozen cases reported in the literature since 1949. From reported cases, it would appear that they usually manifest as an inguino-scrotal mass. We report a case of a spermatic cord leiomyoma that to the best of our knowledge had a unique presentation as an inguinal canal mass mimicking an irreducible inguinal hernia without scrotal involvement.

CASE PRESENTATION

A 41-year-old otherwise healthy male with a history of an undescended right testis and orchidopexy as a child was referred from the emergency department with a diagnosis of an incarcerated right inguinal

hernia. The patient reported having a right inguinal bulge for several years. He decided to seek medical attention because of increasing pain at the site. He denied any recent enlargement of the mass or signs of intestinal obstruction/overlying skin changes.

Physical examination revealed a tender, firm, soft tissue mass in the right inguinal region closely related to the prior transverse inguinal incision at the lower third of the inguinal canal. A Valsalva impulse was positive. The mass was not reducible while standing or lying flat, and it was not mobile. The scrotum was normal in size with two palpable non-tender testicles. Palpation through the external inguinal ring revealed similar findings, namely a firm, non-mobile, non-reducible mass in the lower third of the inguinal canal superior to external ring. The remainder of the physical examination was normal.

INVESTIGATIONS

An abdominal and pelvic CT scan with oral and intravenous contrast revealed a 6 cm indeterminate bilobed calcified soft tissue mass in the right inguinal canal ([figure 1](#)). Laboratory values including complete blood count, basic metabolic panel, alpha-fetoprotein and beta human chorionic gonadotropin were within normal limits.

DIFFERENTIAL DIAGNOSIS

- Inguinal hernia
- Teratoma
- Leiomyoma
- Sarcoma
- Lipoma
- Dermoid cyst

TREATMENT

A standard right inguinal incision was made, and the usual dissection to the external oblique muscle was carried out. On opening the external oblique fascia, a scarred inguinal canal was observed, likely related to the previous surgery. After mobilisation of what initially appeared like a large cord, a distinct mass with calcifications within its capsule was observed extending from the medial inferior aspect of the inguinal canal (external ring) towards the internal ring running parallel to the cord structures. Careful dissection was carried out, and the mass was removed in its entirety without violating its capsule. No other masses or lymphadenopathy was detected. There was no evidence of direct or indirect hernia; however, the inguinal canal floor

Figure 1 CT scan showing an inguinal canal mass.

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Figure 2 Macroscopic view of a well-circumscribed and lobulated tumour (A) showing a pink-tan cut surface with multiple foci of calcification and haemorrhagic changes (B).

was felt to be weakened likely due to a long-term mass effect. Given concerns about the pathology and lack of any presence of a hernia, a Bassini repair was done due to the possibility of reoperation for an oncological dissection.

Pathology, macroscopic and microscopic examinations

Macroscopically, the tumour was a well circumscribed, lobulated, soft tissue mass measuring $14 \times 4.8 \times 3.2$ cm. Sectioning revealed a tan-pink fleshy cut surface with extensive calcification (figure 2). Focal haemorrhage and an irregular segment of red-tan fibroadipose membranous soft tissue measuring $3.9 \times 1.5 \times 0.5$ cm was identified, and no obvious necrosis was seen.

Microscopically, histology revealed a bland spindle cell neoplasm consisting of slender cells with round ends and pink cytoplasm, arranged in intersecting fascicles within a fibrous stroma with scattered multifocal areas of dystrophic calcification and metaplastic (reactive) bone, and cystic degeneration. Based on these findings, the differential diagnosis included leiomyoma, dedifferentiated liposarcoma with myoid differentiation and neural cell neoplasms. In order to differentiate between these diagnostic considerations, immunohistochemical stains for smooth muscle actin (SMA), desmin, S-100 and MDM-2 were performed. The spindle cells showed diffuse positivity for SMA with patchy positivity for desmin, and they were negative for

Figure 3 Microscopic view of the tumour composed of bland spindle cells with rounded ends and eosinophilic cytoplasm, arranged in intersecting fascicles within a fibrous stroma with focal coarse dystrophic calcifications (A) (H&E 200×, inset 400×). Mitotic activity and tumour necrosis are absent. Other areas of the tumour exhibit focal metaplastic (reactive) ossification (B), cystic degeneration (C) and nuclear palisading (D) reminiscent of a Schwannoma. (H&E, B: 200×; C: 100×; D: 200×).

MDM-2 and S-100. In this morphological context, the immunohistochemical profile supported the diagnosis of a leiomyoma (figures 3 and 4).

Outcome and follow-up

The patient tolerated surgery well and was discharged the same day. A follow-up appointment exam revealed a healed incision with no evidence of hernia or mass.

Figure 4 The tumour cells are diffusely positive for smooth muscle actin (SMA) (A) with focal positivity for desmin (B), while they are negative for S100 (C) and CD117 (c-kit) (D) (immunohistochemistry, A: 200×; B: 400×; C: 400×; D: 400×). Additionally, the tumour cells are negative for DOG1 and MDM2 by immunohistochemistry (not shown). The immunohistochemical findings in conjunction with the histomorphology are diagnostic of leiomyoma with degenerative changes.

DISCUSSION

Our patient presented with a rare inguinal canal leiomyoma that was initially diagnosed as an incarcerated inguinal hernia. Embryologically and anatomically, the inguinal canal contains structures originating from mesoderm, ectoderm and endoderm and as such can theoretically develop various tumours of different embryological origin. Inguinal canal cord tumours are very rare,⁷ but it is important to be aware of their possibility in cases of atypical hernia presentation, as additional testing maybe indicated. A CT scan was performed because of the atypical presentation of the 'hernia' and history of prior surgery. Inguinal hernia by itself is not a routine indication for a CT scan. Inguinal canal tumours most commonly present with a clinical picture of an incarcerated inguinal hernia. They are most commonly benign in origin, such as in this case.⁷ The appropriate choice of surgical therapy is very important. Apart from a complete excision of the mass, a decision as to whether to complete the hernia surgery with Lichtenstein or Bassini repair or not at all, has to be made. In the Lichtenstein repair, a mesh

is sutured into the incision and provides a platform for collagen fibre ingrowth. In the case of an inguinal mass, and possible need for reoperation, it is best to perform a suture repair (Bassini or alternative), because if additional resection is required, the field would be less disturbed than with a mesh incorporated into the inguinal canal. In our case, the patient did not have any evidence of hernia; however, extreme laxity of the inguinal canal floor after removal of a fairly large mass would predispose him to developing one. Thus, we opted for completion of hernia surgery with the Bassini repair.

Interestingly, the patient had a history of cryptorchidism, and while cryptorchidism is a well-known risk factor for testicular germ cell tumours such as seminoma, we found no connection in the literature between cryptorchidism and leiomyoma.

Cases of inguinal canal masses are rare, and as such, the approach to their management should be individual and tailored according to the pathology and intraoperative findings.

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Learning points

- ▶ Spermatic cord tumours are most commonly benign tumours, and complete excision of the mass is usually curative.
- ▶ The most common presentation of spermatic cord tumours is as inguino-scrotal mass mimicking incarcerated inguinal hernia.
- ▶ Atypical history, presentation and physical exam of an 'inguinal hernia' is an indication for additional imaging such as ultrasound or a CT scan.
- ▶ Preoperative imaging is helpful in identifying a mass and differentiating from a hernia, but the definitive diagnosis is most commonly based on intraoperative, and histopathological findings ultimately determining final therapy.
- ▶ In cases of inguinal floor defects or laxity after removal of a mass, it is best to perform a suture repair (Bassini or alternative) since the field would be less disturbed than with a mesh incorporated into the inguinal canal if additional resection is required, thus making reoperation less challenging.

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