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Malignant Mesothelioma of the Inguinal Canal With an Unusually Long Survival

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A 71-year-old white male was seen in consultation with a 48-year history of multiple surgeries for recurrent right inguinal area malignant mesothelioma. In 1957, at age 24 years, he presented with a right-sided groin mass. At time of surgery a 3.5 cm tumor adherent to the spermatic cord at the site of the right inguinal ring was noted, and on pathologic examination was completely replaced by anaplastic tumor cells. The patient subsequently underwent right inguinal lymph-node dissection and radical orchidectomy but no cancer was identified. In 1966, the patient underwent resection of a right lower abdominal wall mass that was diagnosed as synovial sarcoma. Recurrent tumor masses in the same region removed in 1971 and 1983 were diagnosed as malignant melanoma. However, a detailed pathologic examination, including immunohistochemistry and electron microscopy (EM), of a 1.5 cm soft tissue mass at the right inguinal ring removed in 1987 was felt to be most consistent with a mesothelioma arising in the inguinal canal. Pathologic review of prior surgical specimens back to 1966 was also felt to represent malignant mesothelioma. The patient also underwent surgical resections in 1990, 1996, and 2001 for tumor recurrence in the right inguinal-pelvic area and in each case the pathology was consistent with mesothelioma.

Computed tomography (CT) scan of the abdomen and pelvis done at our institution showed no tumor in the abdomen but revealed a large right inguinal mass (Fig. 1A) and 2 masses at the base of penis (Fig. 1B). Light microscopic examination of the surgical resection specimen from 1987 showed papillary and tubulopapillary pattern, lined by a single layer of cuboidal to ovoid cells (Fig. 2A). Although calretinin immunostaining was negative, other immunostains supported the diagnosis of mesothelioma including positivity for WT-1 (Fig. 2B), mesothelin (Fig. 2C), cytokeratin MAK-6, and the pan cytokeratin AE1/AE3. Immunostains for other tumors in the differential including melanoma, neuroendocrine

tumors, and adenocarcinoma were negative. EM showed prominent slender surface microvilli, as well as dense membrane bound lysosomes and abundant endoplasmic reticulum (Fig. 2D).

At 25 to 30 weeks of embryonic development, a reflected fold of the processus vaginalis (an out-pouching of the parietal peritoneum that forms the inguinal canal) covers the testis during its migration to the scrotum forming the visceral and parietal layers of the tunica vaginalis, while the rest of the processus vaginalis atrophies.¹ However, in some cases the processus vaginalis can remain patent and can lead to an inguinal hernia. Because both the inguinal canal and the tunica vaginalis are derived from the parietal peritoneum they are at risk for development of mesothelioma. Though several cases of tunica vaginalis mesothelioma have been reported there are only a few case reports of mesothelioma involving the inguinal canal.^{2–4} Given the poor prognosis of mesothelioma our patient is unusual in that he has had no systemic dissemination despite multiple local tumor recurrences and to our knowledge represents the longest reported survival for a patient with mesothelioma.

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REFERENCES

1. Heyns CF. The gubernaculum during testicular descent in the human fetus. *J Anat.* 1987;153:93–112. [PubMed: 2892824]
2. Plas E, Riedl CR, Pfluger H. Malignant mesothelioma of the tunica vaginalis testis: review of the literature and assessment of prognostic parameters. *Cancer.* 1998;83:2437–2446. [PubMed: 9874447]
3. Leiber C, Katzenwadel A, Popken G, et al. Tumor of the spermatic cord: an unusual primary manifestation of an epithelial mesothelioma of the peritoneum with patent processus vaginalis. *BJU Int.* 2000;86:415–418.
4. Testini M, Scattone A, Venere BD, et al. Primary malignant peritoneal mesothelioma in an incarcerated groin hernia: report of a case. *Surg Today.* 2005;35:421–424. [PubMed: 15864428]

FIGURE 1.

CT scan of the pelvis and groin revealed a large 10×5.2 cm right inguinal mass (A) and 2 masses at the penis with the largest mass measuring 5.2×2.9 cm causing displacement of the penis (B).

FIGURE 2. Pathologic evaluation of the surgical resection specimen from 1987 including light microscopic examination (A), immunostaining for WT-1 (B) and mesothelin (C), and electron microscopic examination (D).