

Surprises in Hernial Sacs

Diagnosis of Tumors by Microscopic Examination

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FOR SEVERAL YEARS I have observed, in various laboratories, the questionable practice of regarding surgically excised hernial sacs as rather dull "routine" specimens. Examination is often limited to superficial examination of gross material. Yet such practices may be treacherously inadequate, for the sacs are not always innocuous postoperative residue. Justification for the policy of our laboratory of preparing histologic sections of all hernial sacs is provided by the following five examples.

CASE 1. A 77-year-old man underwent repair of a reducible right inguinal hernia at the Veterans Administration Hospital, San Francisco, in July 1957. He reported a previous operation for "a tumor" but the records were not currently available to further qualify the nature of this illness. In a preoperative physical examination, including roentgen studies with barium enema, no evidence of active disease was observed. The surgical specimen was a wrinkled membrane, 2 x 0.5 x 0.5 cm., showing no unusual features. Histologically, however, an unsuspected implant of adenocarcinoma was observed in the hernial sac wall. Subsequent clinicopathologic correlation indicated removal of an adenocarcinoma of the colon 16 months previously at another hospital (Figures 1 and 2).

CASE 2. A 61-year-old man had a left inguinal hernia repaired at the Veterans Hospital in February 1958. The hernia had been present three years. The patient's health was generally good with the exception of transient obstruction of urinary flow, attributed to an enlarged prostate. The surgical specimen consisted of two filmy membranes and 28 gm. of fat. Upon histological examination of the membranes nests of malignant cells in a pattern suggestive of adenocarcinoma were seen below the mesothelial surface. The primary site had not been determined at the time of this report although roentgenograms showed evidence of enlargement of multiple pulmonary nodes.

CASE 3. In March of 1957 a woman 57 years of age had elective repair of a right inguinal hernia

• Careful microscopic examination of excised hernial sacs would appear to give evidence of neoplastic disease—often unsuspected otherwise—in a sufficient proportion of cases to warrant this exercise of thoroughness. In five cases herein described, valuable information was obtained by this means.

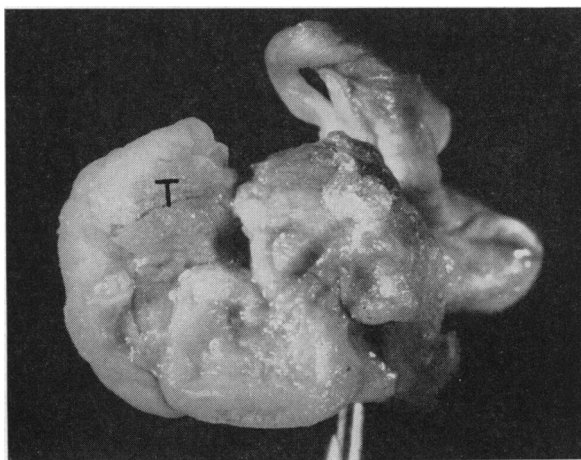


Figure 1.—Gross hernial sac as removed from formalin fixative (Case 1). Enlarged six times. Tumor nodule (T) is indistinguishable grossly from adjacent globules of properitoneal fat.

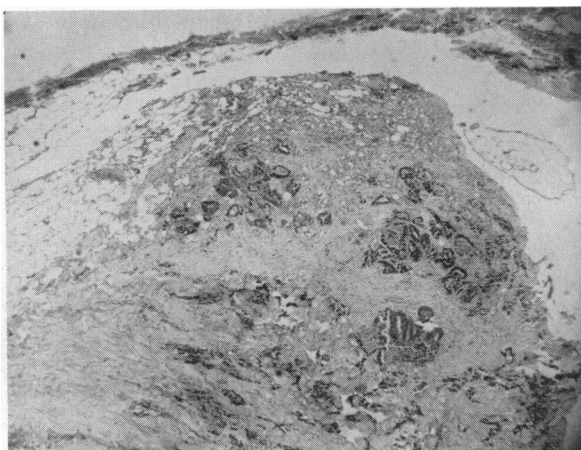


Figure 2.—Microscopic view of section of tumor nodule (Case 1), showing well differentiated adenocarcinoma (hematoxylin-eosin stained, X37).

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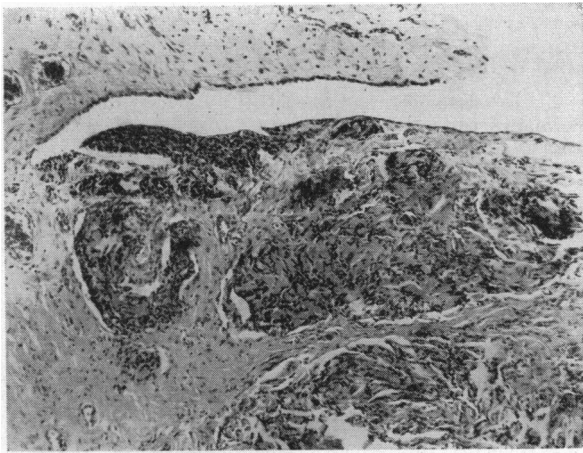


Figure 3.—Microscopic section showing fibrous type of presumably benign mesothelioma (Case 4). Note proliferative transformation of surface mesothelium. Hematoxylin-eosin stained, $\times 37$.

at St. Luke's Hospital, San Francisco. The gross hernial sac specimen showed a few yellowish-white elevations on the smooth surface, the largest being 0.7 cm. in maximum dimension. Microscopically sections of these elevated areas were seen as well differentiated implants of adenocarcinoma. A week later the abdomen was explored and the primary neoplasm, a cystadenocarcinoma of the right ovary, was removed.

CASE 4. The patient, a man 55 years of age in generally good health, entered St. Luke's Hospital, San Francisco, in May 1957 for repair of a right inguinal hernia. Gross examination of the removed hernial sac showed a few tiny excrescences on the mesothelial surface. Histologically these multiple growths had the pattern of fibrous mesothelioma originating locally and presumably benign (Figure 3).

CASE 5. A 68-year-old man had left inguinal herniorrhaphy at the VA Hospital, San Francisco, in August 1957. The gross specimen was composed of three pieces of gray membrane and two fragments of fat, the largest piece being 8 x 3 x 2 cm. Six random sections were examined. Microscopically, the hernia sac showed cuboidal metaplasia of the mesothelium; and set amidst properitoneal adipose tissue was a nodule of perfectly formed adrenal cortex.

DISCUSSION

In two of the above examples (Cases 2 and 3) latent carcinoma was detected solely by histologic study of otherwise "routine" hernial sac tissue. In Case 1, histologic methods provided positive evidence of recurrence of cancer in advance of clinical

manifestation. In Case 4, a rare neoplasm was diagnosed only because the hernial sac was minutely examined and proper sections taken. In all of these instances important clinical information was obtained.

In the performance of indirect herniorrhaphy tissue is removed from the body in 97.7 per cent of cases.⁹ It would seem almost certain that of the thousands of hernial sacs received by pathologists every year, a certain proportion, admittedly small, will be made up of more than prosaic fat, connective tissue and mesothelium. From the statistical information available, the most serious morphologic hernial sac abnormality, neoplastic disease, is rare. The surgical pathology catalogue at the Veterans Administration Hospital in San Francisco, containing over 800 sections of hernial sac tissue filed since 1948, holds only two examples of tumor (reported herein) plus one of malignant mesothelioma which is not considered here because its nature was fully appreciated before operation. Communication with the Armed Forces Institute of Pathology in August 1957 indicated that its vast files held records of only five benign hernial sac tumors and none of malignant.

Pertinent literature is likewise sparse. Standard textbooks of surgery and even monographs on hernia usually pass over neoplastic complications in silence. Although the first example of tumorous hernia was recorded over 200 years ago,¹ Gros-Devaud's comprehensive review in 1903 listed only 15 acceptable cases plus one original example. More recent reports have indicated that metastasis to hernial sacs has arisen in such primary sites as the large bowel,^{3,4,8} stomach,² bladder,¹⁰ pericardium,¹³ tonsil,¹³ and skin (disseminated melanoma).⁵ In most such cases, metastasis was by transperitoneal spread to hernial sacs. Melanomas, however, probably arrive through vascular channels. Such focal, nodular implants in hernias are to be distinguished from instances of tumor involvement in which a neoplastic viscus lies incarcerated in the sac or direct extension of a local tumor has occurred. As a rule the former come as surprises when the sac is properly examined whereas the latter are usually obvious at the time of preoperative physical examination.

There have been reports of primary hernial sac tumors,^{3,7,14} usually myxoid in appearance and many of them classified as sarcomas. Some observers are probably correct in maintaining that at least some of these bizarre tumors really are atypical patterns of metastatic adenocarcinoma.^{6,11} Less controversial is the fact that primary mesotheliomas can occur in hernial sacs. Our limited experience with two cases of malignant mesothelioma (one in a hernial sac) urges caution in prognosis, even if the

tumor shows the pattern of the so-called "benign fibrous" variety (Case 4). There is no definite indication that mesotheliomas have a greater tendency to arise in the "irritated" tissue of a hernial sac than from other mesothelial surfaces.

As to non-neoplastic abnormalities in hernial sacs (Case 5), little need be said other than that more often than not they are but academic curiosities. Adrenal cortical tissue has been observed on a number of occasions in hernial sacs, and it is said to be present in the sac in 1 per cent of children who have repair of inguinal hernia.¹² Watson's monograph also mentioned esoterica such as helminthic parasites in hernias. Pagliani⁸ cited observation of decidual change in this location in one case.

Hernial sacs are peritoneal biopsy specimens. Although discrete foci of neoplastic disease are seldom seen in them, this fact alone does not justify omitting to look for it by ordinary laboratory methods, including microscopic examination of representative sections.

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