A Surgical Case of Adenomatoid Tumor with Special Reference to the Histochemical Properties

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INTRODUCTION

The adenomatoid tumor is benign, frequently asymptomatic and fairly rare neoplasm[1),2),3)]. Although unimportant clinically, the histogenesis of this tumor has been the subject of controversy and a number of theories have been proposed such that it may arise from mesothelial cells[4),5),6),7),8),9)], vascular endothelial cells[10)], epithelium of Wolffian system[11)], or epithelium of Mullerian duct[12)]. This tumor is characterized histologically by the angiomatoid and adenomatoid structures. Because of the scatter of gland-like structures in abudant connective tissue it is sometimes misdiagnosed as adenocarcinoma.

Recently, we had a chance to examine a surgical specimen of this tumor which resembled adenocarcinoma but could be diagnosed as such because of a low endothelial-like cells lining the spaces. To obtain pertinent information for the diagnosis and for a determination of histogenesis, examination with several histochemical stainings was undertaken. In this brief communication, the result of histochemical study will be described and compared with the previous reports.

CASE REPORT

A 47-year-old man noticed a small painless mass in right scrotum in January 1974. He had no episode of trauma, hydrocele or spermatocele. The tumor mass gradually increased, in size and was surgically removed under local anesthesia after two weeks.

Gross Feature: The tumor was solitary and well-circumscribed measuring approximately 1.0×0.5 cm. It was attached to the head of the right

epididymis. Consistency after formalin fixation was elastic hard and the cut surface was uniformly gray-white.

Microscopic Feature: There were scattered numerous spaces of various size in loose connective tissue intermingled with bundles of smooth muscle. The spaces appeared empty and were lined with a single layer of flattened cells with indifinite outline showing angiomatoid appearance but without blood corpuscles. The large spaces were distended from inside and the lining cells were extremely thinned. Some large spaces lacked the lining cells, whereas the cells that lined narrower spaces were thick and had basophilic cytoplasm. The latters showed resemblance to glands but there was neither basement membrane nor brush border. In some places, the tissue space was even obliterated to form solid cell cord. Many of the cells had large clear cytoplasmic vacuoles and showed honeycomb appearance. Fusion of the vacuoles resulted in cavities or tissue spaces as mentioned above. The tumor cell nuclei were round and uniform in size and shape. They had fine chromatin and central basophilic nucleolus. No mitotic figure could be found anywhere. The gland-like or angiomatoid structures were haphazardly arranged but showed no invasive growth into the surrounding tissue. In the interstitium there were some collection of lymphocytes. No lymphoid follicles were formed, however. A greater number of smooth muscle bundles and medium-sized blood vessels were present in periphery of the tumor. The lesion was circumscribed by a moderately dense zone of compressed connective tissue.

Histochemistry: Staining of glycogen using periodic acid-Schiff reaction with or without diastase pre-digestion was negative. The gland-like spaces and the intracytoplasmic vacuoles of lining cells, although appeared empty with hematoxylin-eosin stain, contained substance which reacted with alcian blue stain. This reaction was negative after digestion with hyaluronidase. The stroma was alcian blue negative. Other staining, e. g. reticulin, trichrome and PTAH stains gave no additional information.

COMMENT

Primary neoplasms of the epididymis are rare, but they are of importance in differential diagnosis of other diseases affecting this organ. The commonest preoperative diagnoses were tumors of the epididymis, chronic epididymitis and testicular neoplasm[13]. Adenomatoid tumor is the commonest among epididymal neoplasms and accounts for 53 per cent[14].

At first glance, we felt some difficulty in differentiating it from

adenocarcinoma but it was soon recognized that this tumor do not possess various features of malignancy; i.e. cellular pleomorphism, hyperchromatic nuclei and frequent mitoses. We are of the opinion that a characteristically fine stroma of this tumor as contrasted to dense collagenous fibers that accompanies the invasive growth of adenocarcinoma may also be of some diagnostic aid. More useful procedures for differentiation will be the results of PAS, mucicarmine and alcian blue stains[1]. This tumor is positive only with alcian blue stain whereas most adenocarcinoma are positive with all these methods. The possibility of epididymal carcinoma (or malignant adenomatoid tumor)[1] was excluded on the same basis. As far as the adenomatoid tumor is concerned, there are no recorded instances of recurrence or metastasis[2-16].

The globus minor is affected four times as frequently as the head of the epididymis and the left side is involved nearly twice as often as the right[13]. In the present case, however, the head of the right epididymis was affected.

Much has been written about the nature and origin of the adenomatoid tumor. As is evident from the list[2] of synonyms, various tissues such as vascular endothelium[10], mesothelium[4-9], Wolffian system epithelium[11], and Mullerian duct epithelium[12] have been considered to be the site of origin but many pathologists have favored the theory of mesothelial origin [4-9]. According the literature, mucin was positive in some but glycogen was invariablly negative by PAS reaction[1),6)-9)]. One of the properties of the mesothelium is the production and secretion of hyaluronic acid and mucopolysaccharides[1]. Wagner and his associates pointed out that it was difficult to demonstrate acid mucopolysaccharide in formalin fixed specimen[15]. In our case, however, stainability was diminished remarkably after treatment with hyaluronidase. Malignat mesothelioma produces large quantities of acid mucopolysaccharide as compared to non-neoplastic mesothelium, and histochemical demonstration of hyaluronic acid is used for the diagnosis of pleural mesothelioma[15]. However, the facts that the adenomatoid tumor is benign, angiomatoid in appearance, and has no connection with the preexisting mesothelium are not in accord with this theory as these contradict with the known properties of mesothelial tumor [11),12)]. The fact that the cells of adenomatoid tumor cannot be distinguished from normal genital mesothelium by histochemical or electron microscopic observations seems to support the hypothesis of mesothelial origin[6-9),13-16)].

Table. 1. Histochemical Data

	PAS	Diastase + PAS	Alcian blue	Hyaluronidase + Alcian blue
This case	−	−	+	−
Youngs[5]	−	+	+	+
Lee[16]	−	−		
Ferenczy[6]	+	−	+	
Taxy[7]	−	−	+	−
Epididymal[1] carcinoma	+	+(−)	+	+

SUMMARY

A surgical case of adenomatoid tumor which arised in the head of the right epididymis of 47-year-old man was reported. The tumor was small painless and showed typical histologic picture. Some histochemical staining of diagnositc aid were discribed and its histogenesis was discussed.

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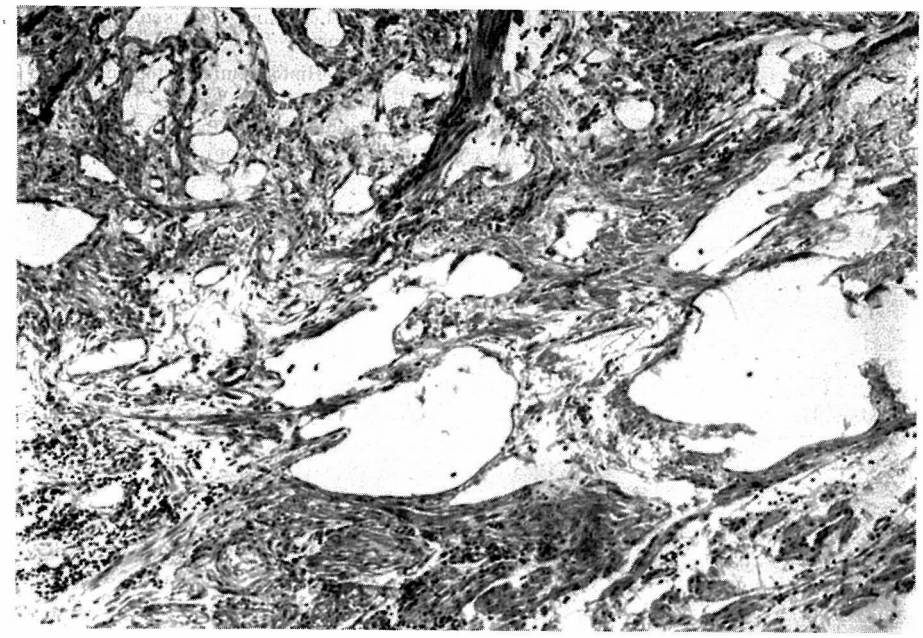

Fig. 1. Numerous spaces with endothelial-like lining in loose connective tissue. There are bundles of smooth muscles and collection of lymphocytes. H. E. ×60

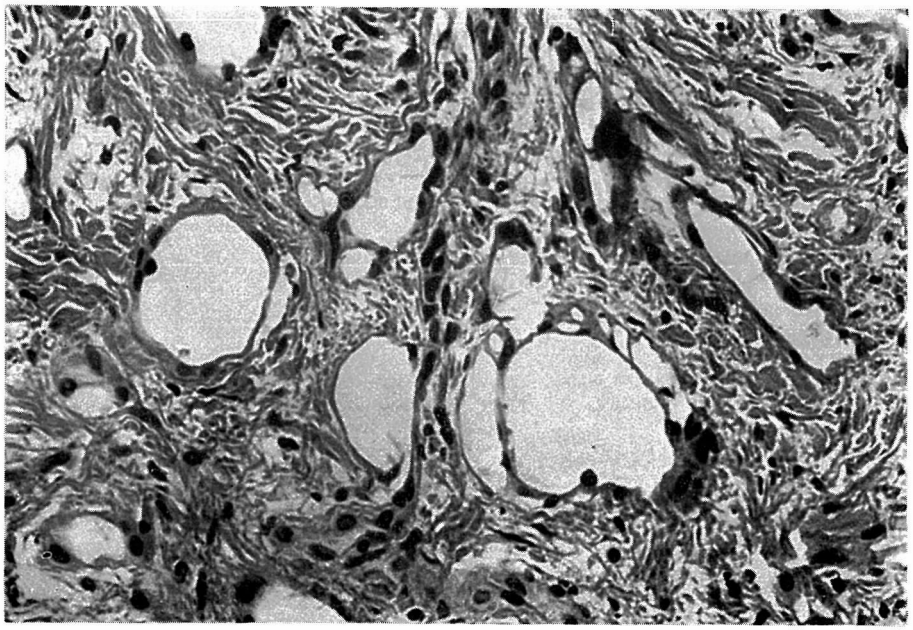

Fig. 2. Typical adenomatoid or angiomatoid structures. Some lining cells are flattened. Large clear vacuoles are seen in the cytoplasm. H. E. ×300

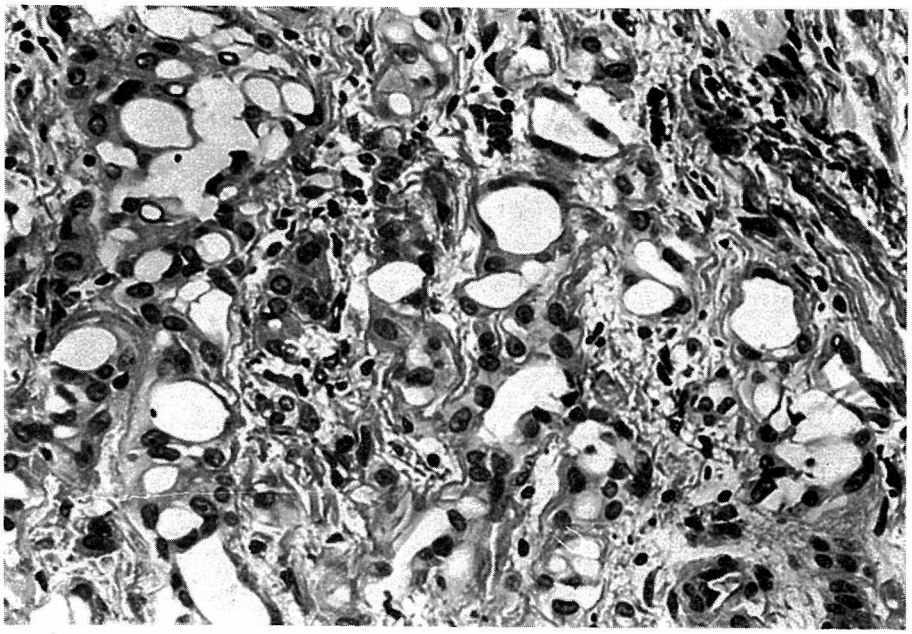

Fig. 3. Nests of plump cells. Note that large vacuoles coalesce to form cavities.
H. E. ×300

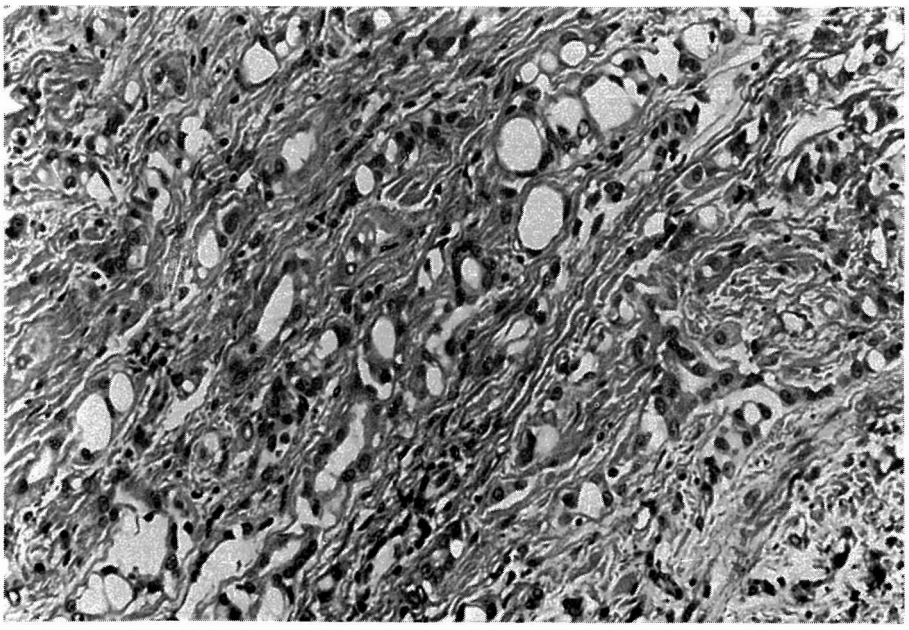

Fig. 4. An area in which gland-like pattern predominates.
H. E. ×200

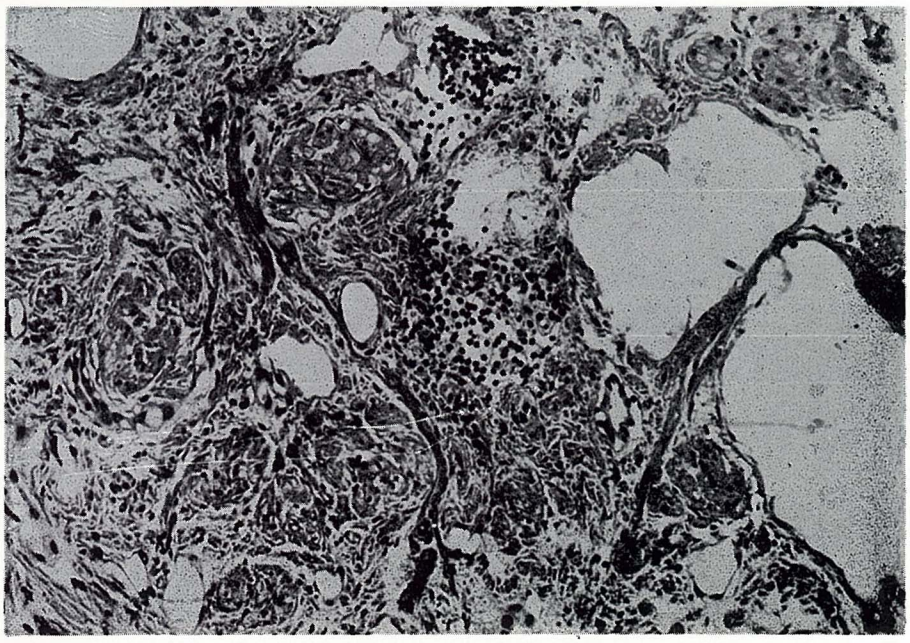

Fig. 5. Some smooth muscle bundles, aggregation of lymphocytes and large spaces without cell lining. H. E. ×100

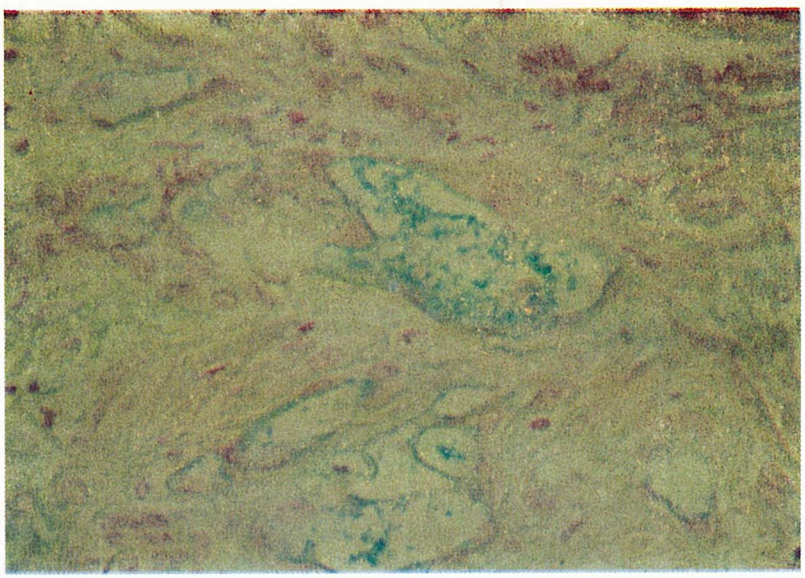

Fig. 6. Alcian blue positive substance in the intracytoplasmic vacuoles and in the cavities. H. E. ×300