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Mesonephric Remnants of the Diaphragm: A Major Pitfall in a Patient with Oesophageal Carcinoma

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ABSTRACT

Mesonephric remnants represent a benign epithelial glandular proliferation derived from the lack of complete regression of the mesonephric ducts in embryogenesis. They are usually incidental findings and can cause confusion and diagnostic failures since they appear as glands outside the context of a glandular organ. Here we introduce the case of an 80-year-old man presented to the Chirurgical Department due to oesophageal stenosis in a context of a signet-ring cell carcinoma of the gastroesophageal junction. The CT-scan study demonstrated liquid retention in the esophagus and peritoneal carcinomatosis was suspected. Laparoscopy revealed multiple white spots on the peritoneal oesophageal hiatus which were biopsied. On microscopic examination, tubular formations with a monomorphic, cubic epithelial lining were seen which showed immunohistochemically a strong reactivity of CK-7 and Ber-EP4 and negativity for TTF-1, WT1, Calretinin, PAX-8, and CDX2 (Figure 2). A local metastasis of the oesophageal carcinoma was excluded based on morphology and immunohistochemistry and the diagnosis of mesonephric remnants was made. Here we present a rare but potentially grave pitfall and to our best knowledge the first case of mesonephric remnants within the diaphragm.

Keywords: Mesonephric Remnants • Diaphragm • Immunohistochemistry • Adenocarcinoma • Glandular Formation

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INTRODUCTION

Mesonephric remnants represent a benign epithelial glandular proliferation derived from the lack of complete regression of the mesonephric ducts during embryogenesis [1-3]. Mesonephric ducts in men develop into seminal vesicles, vas deferens, and epididymis, in the female the absence of testosterone cause duct regression, which can be incomplete. Mesonephric remnants can cause confusion and diagnostic failures, especially in small biopsies since they appear as glands outside the context of a glandular organ [1,4].

Usually, mesonephric remnants are incidental microscopic findings without significant

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gross appearance, unless they build cyst formations. Histologically they are characterized by small tubules lined by low columnar to cuboidal cells without cilia and surrounded by a prominent layer of smooth muscle. No predisposing factors are known. It is important to keep these lesions in mind as a differential diagnosis since they could be easily misdiagnosed as infiltrative cancer [1].

Mesonephric remnants are well characterized in the pelvic area of both men and women. In our work, we describe to the best of our knowledge for the first time mesonephric remnants within the diaphragm.

CASE PRESENTATION

A malnourished 80-year-old man presented to the surgical department due to oesophageal stenosis in the context of a signet-ring cell carcinoma of the gastroesophageal junction. The CT-scan study demonstrated liquid retention in the esophagus, a concentric wall thickening at the oesophagogastric junction with enlarged locoregional and abdominal lymph nodes, and a peritoneal metastasis was suspected. Laparoscopy was performed and white spots on the oesophageal hiatus were described as well as suspected liver cirrhosis. Biopsies were taken and sent for histological analysis. No further lesions were observed.

The liver sample confirmed liver cirrhosis, and the sample from the omentum was inconspicuous.

The sample from the oesophageal hiatus showed the results below. The interdisciplinary tumor board recommended chemotherapy, so the patient left the hospital in reduced general condition to start chemotherapy in his hometown. Within the next three weeks, he was admitted to a local hospital with upper GI bleeding and never started chemotherapy. In further reduced general condition our department of internal medicine admitted him six weeks after the diagnostic laparoscopy. An ascites sample was taken and showed malignant cells of known cancer above. The interdisciplinary tumor board is recommended due to the new findings and best supportive care, unfortunately, eleven days later he died.

Written informed consent was obtained from the patient for publication of the case report and all accompanying images.

Pathological Findings

Grossly the sample has been described as grey-beige, hard-elastic tissue without visible tumorous infiltration.

The tissue was processed and stained according to standard pathological procedures. Microscopy demonstrated tubular formations with a monomorphic, cubic epithelial lining as depicted in Figure 1.

Immunohistochemical stainings were performed using formalin fixed-paraffin embedded tissue sections and processed using the Ventana BenchMark Ultra Stainer (Oro Valley, Arizona, United States). The clones used are listed in Table 1.

The epithelial cells showed immunohistochemically a strong positivity of CK-7 and Ber-EP4 and negativity for TTF-1, WT1, Calretinin, PAX-8, and CDX2 (Figure 2). A local metastasis of the oesophageal carcinoma was excluded based on morphology and immunohistochemistry.

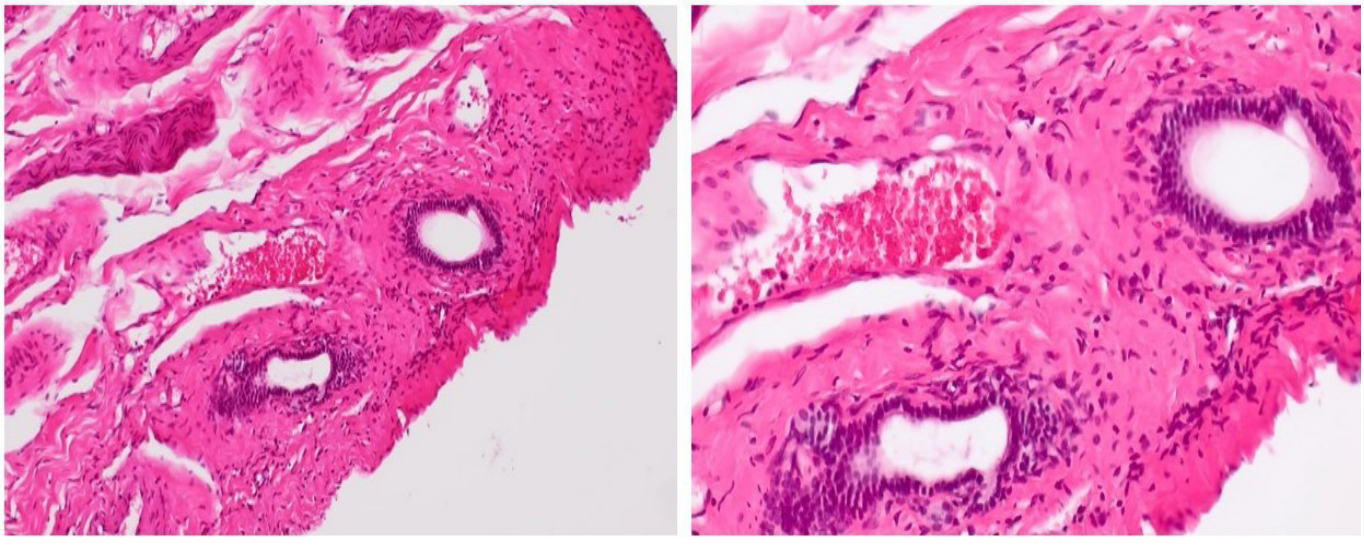

Figure 1: *Microscopic aspect of the lesion at 10x and 20x magnification. Routine Hematoxylin Eosin Staining.*

Table 1: Immunohistochemical antibodies used. BiogeneX Laboratories (Fremont, California, United States), Cell Marque Corporation (Rocklin, California, United States), Ventana Medical Systems (Oro Valley, Arizona, United States), Zytomed Systems GhmH (Bargteheide, Germany).

ANTIBODY	SOURCE	CLONE	SPECIES
BER-EP4	Cell Marque	Ber-Ep4	Mouse
CALRETININ	Ventana	SP65	Rabbit
CDX2	Zytomed	EPR2764Y	Rabbit
CK7	BiogeneX	OVTL12/30	Mouse
TTF1	BiogeneX	BGX-397A	Mouse
PAX8	Cell Marque	MRQ-50	Mouse
WT1	Cell Marque	6F-H2	Mouse

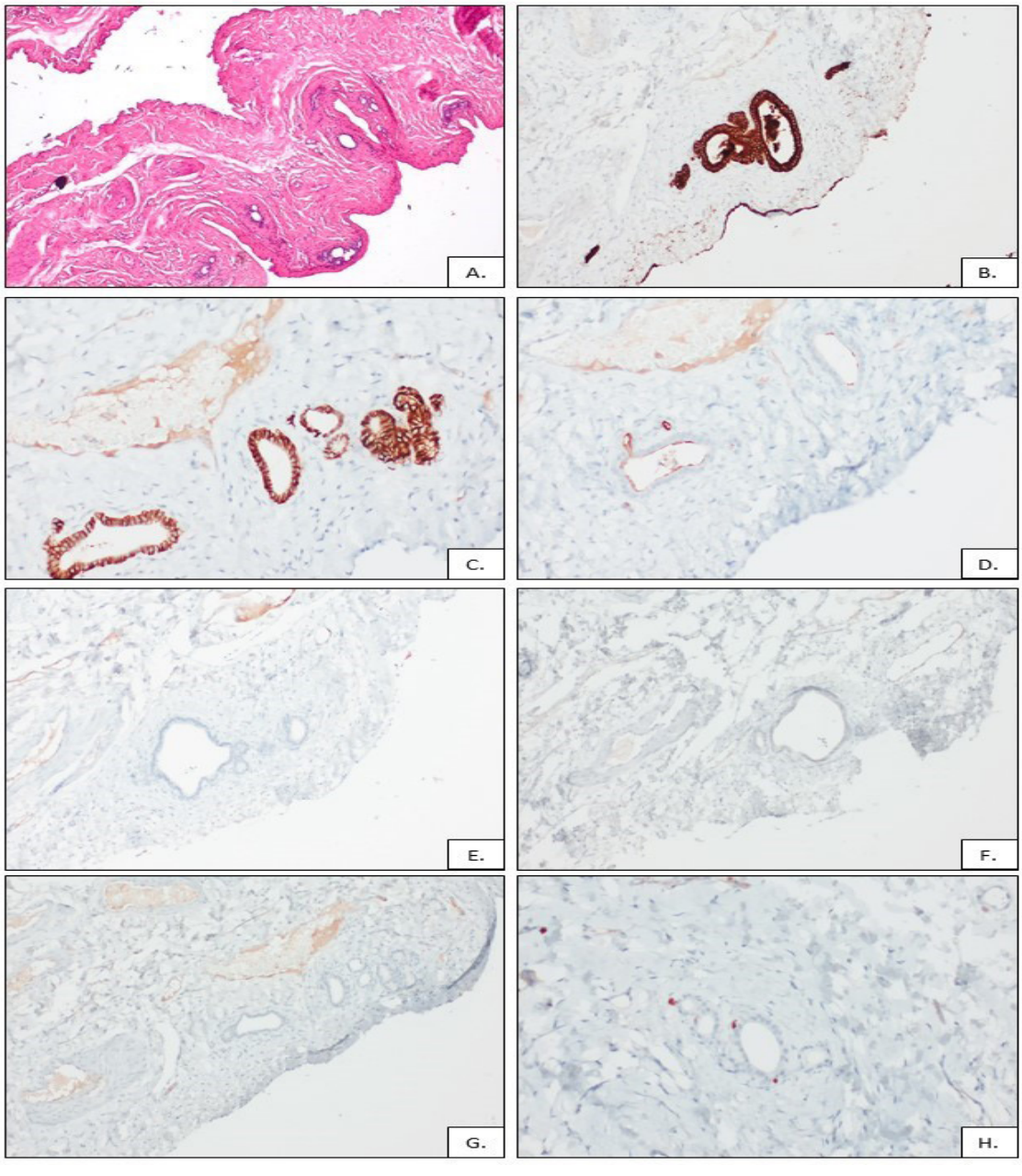

Figure 2: *Immunhistochemical study. A: Hematoxil&Eosin; B: Pan-cytokeratin; C: BER-Ep4; D: CD10; E: TTF1; F: PAX8; G: CDX2; H: MIB-1.*

DISCUSSION

Mesonephric remnants are the embryonic rest of the mesonephric ducts. They are rare lesions and occur usually as incidental findings. Despite their rarity, awareness of them is of great importance to avoid confusion with a carcinoma since they represent glandular formations outside the context of a glandular organ [1,5].

Mesonephric remnants are well known and often described in the pelvic region, especially in women. The main differential diagnosis includes mesothelial hyperplasia, epithelial mesothelioma, well-differentiated neuroendocrine tumor, and most important -infiltrative adenocarcinoma. Peritoneal mesothelial hyperplasia may form bland cuboidal cells appearing as papillary arrangements with occasional psammoma bodies, solid nests, or tubular formations-all features which were not seen in the presented lesion. Specific immunohistochemical markers can be used to exclude epithelial mesothelioma and a neuroendocrine tumor, the latter express neuroendocrine markers such as synaptophysin, chromogranin A or CD56 while the former is typically positive for calretinin [1,6].

However, as mentioned earlier, the main diagnostic pitfall is represented by an adenocarcinoma, especially in the context of established cancer. Criteria to determine malignancy are stromal invasion, cell atypia, cell pleomorphism, and tumor necrosis all of which are not seen in mesonephric rests [1,7-9]. Immunohistochemistry in the context of bland morphology lacking cell atypia represents a helpful instrument to safeguard against misdiagnosis and ensure correct histologic classification.

CONCLUSION

In conclusion, here we present to the best of our knowledge the first report of mesonephric remnants occurring in the diaphragm. In this specific case, mesonephric remnants occurred in a patient with oesophageal carcinoma, so additional analyses were required to exclude local metastasis. Other most important differential diagnoses are represented by mesothelial neoplasia, including mesothelial hyperplasia and epithelial mesothelioma. Familiarity with the diagnosis of mesonephric remnants is crucial to avoid diagnostic failure.

CONFLICT OF INTEREST

The authors declare that they have no conflicts of interest.

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PERMISSION

The patient gave written informed consent for the publication of this work.

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