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Rare case of pancreatic adenocarcinoma with spermatic cord and testicular metastasis

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SUMMARY

Male gonadal metastases from pancreatic carcinomas are extremely rare, with fewer than 20 cases documented in the literature. Herein, we report a man in his 50s who presented at the genitourinary outpatient department with an enlarged scrotum (right side) that had developed progressively over several weeks. He also reported mild upper abdominal discomfort. Scrotal sonography revealed a hydrocele on the right side without testicular lesions. A mass pancreatic tail lesion with invasion of the spleen and left adrenal gland was identified through abdominal CT and MRI. Endoscopic ultrasound fine needle biopsy and right radical orchiectomy were performed. Moderately differentiated adenocarcinoma of the pancreatic tail with hematogenous metastasis to the right testis, epididymis and spermatic cord was verified on the basis of the pathology report. Disease progression occurred despite the patient receiving palliative chemoradiation therapy.

BACKGROUND

Metastatic testicular tumours account for only 0.02% to 3.6% of testicular tumours,[1 2] and primary sites of metastasis include the prostate, kidney, lung, skin, adrenal gland and gastrointestinal tract. Only rarely do pancreatic tail tumours metastasise to the testis.[3–8]

Herein, we present a case of hematogenous metastatic adenocarcinoma of the right testis resulting from pancreatic cancer.

CASE PRESENTATION

A man in his 50s with a history of smoking but not of drinking, hypertension, type 2 diabetes mellitus and benign prostatic hyperplasia with severe lower urinary tract symptoms that was being treated with medication presented with an enlarged right scrotum and upper abdominal pain that had developed over several weeks. He had no history of cancer; thus, he was referred to the urology and gastroenterology outpatient clinic.

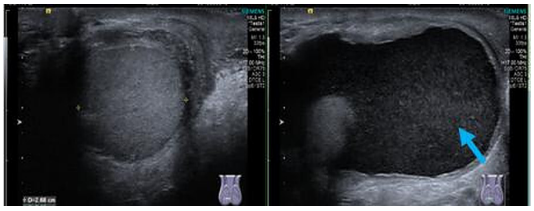

Figure 1 Scrotal sonography revealed a hydrocele on the right scrotum (arrow); no obvious abnormalities were observed in the right testis or epididymis.

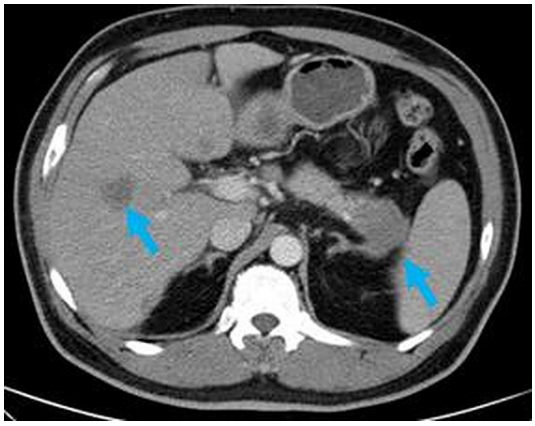

Figure 2 CT scan revealed one pancreatic tail mass lesion (4.9 cm) with close contact to the left spleen and left adrenal gland and multiple lobulated and irregular poorly enhancing foci in both lobes of the liver.

Investigations

Abdominal CT and scrotal sonography were performed, the latter of which revealed a bilateral hydrocele with internal echo on the right testis (figure 1). A lobulated poorly enhancing mass lesion (4.9 cm) in the pancreatic tail with extrapancreatic invasion of the spleen and left adrenal gland was incidentally identified. Multiple liver lesions were also found. MRI further verified pancreatic cancer (figures 2 and 3). A Tc-99m MDP whole-body bone scan revealed markedly increased uptake of the radioisotope over the left *sacroiliac* joint, and

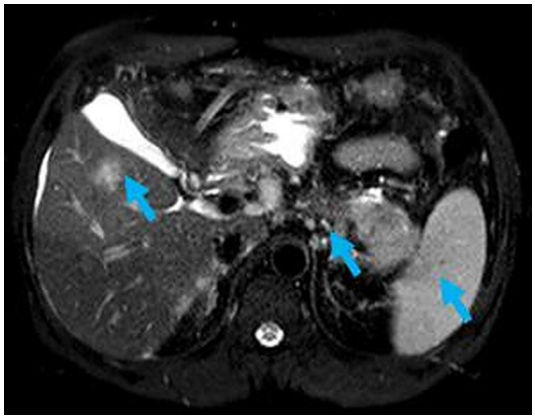

Figure 3 Poorly enhancing mass (3.5 cm×3 cm) in the pancreatic tail with close contact to the spleen and left adrenal gland and numerous enhancing masses of various sizes in both lobes of the liver. Several small lymph nodes in the perigastric space, coeliac trunk and para-aortic space were noted (arrow).

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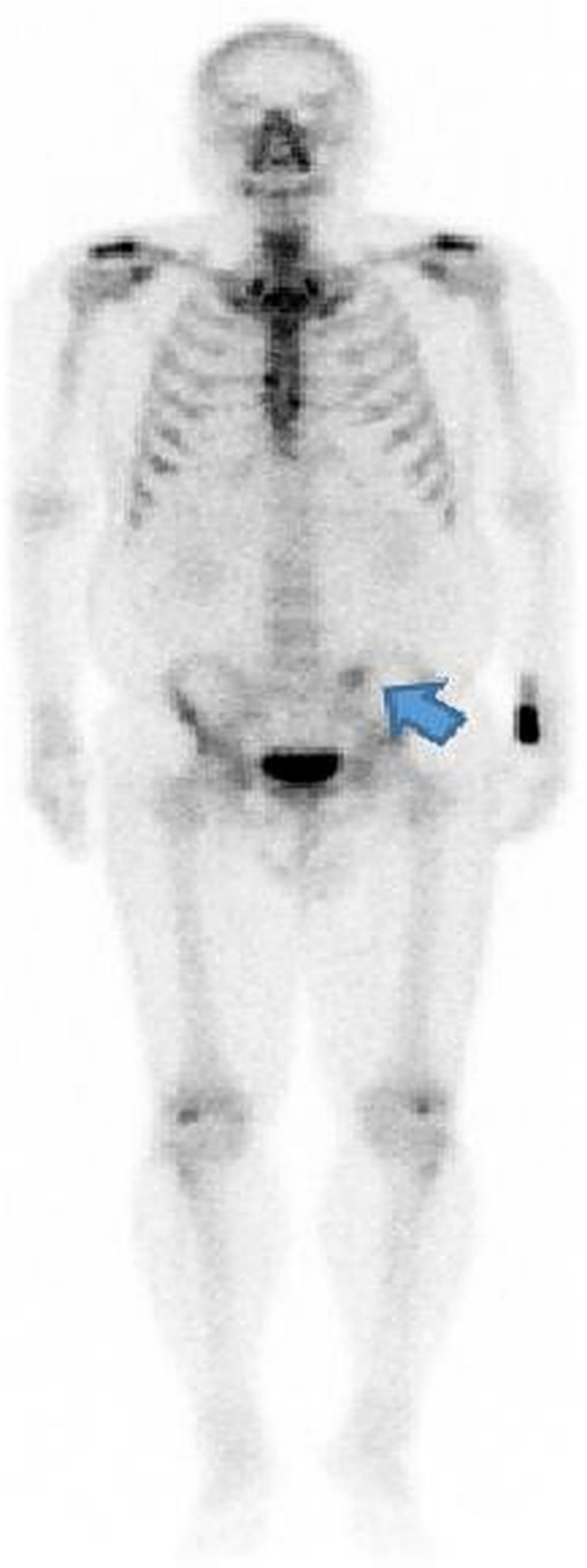

Figure 4 Whole-body bone scan revealed markedly increased uptake of radioisotope over the left sacroiliac joint.

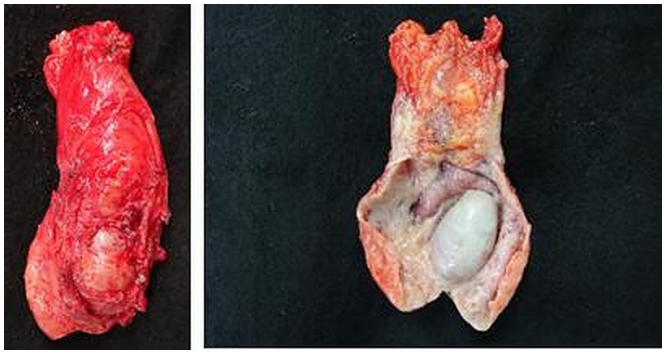

Figure 5 Gross appearance of resected right spermatic cord and testis.

bone malignancy was suspected (figure 4). Elevated levels of the tumour markers carbohydrate antigen 19-9 and carcinoembryonic antigen as well as normal levels of free β-human chorionic gonadotropin and alpha-fetoprotein were detected.

Differential diagnosis

On the basis of preoperative imaging, our initial differential diagnosis included a pancreatic tail tumour with spleen, left adrenal gland, liver and bone metastases. A testicular tumour (right side) with spermatic cord invasion was also suspected. However, the association between the pancreatic tail tumour and gonadal tumour was unclear.

Treatment

Endoscopic ultrasound fine needle biopsy of the pancreatic tumour mass and right radical orchiectomy were performed. The resected right testis and epididymis were normal in appearance, but the spermatic cord was hardened (figure 5). Pathology examination of the pancreas biopsy tissue and of the right spermatic cord, testis and epididymis revealed moderately differentiated adenocarcinoma (figure 6). Intravascular tumour thrombi were observed. On the basis of imaging and the pathology report, we diagnosed moderately differentiated adenocarcinoma (stage IV, cT4N2M1) of the pancreatic tail with direct invasion of the adjacent spleen and with left adrenal gland, right testis, liver and bone metastases. Our multidisciplinary team discussed this case, and the oncologist suggested using adjuvant chemotherapy (FOLFIRINOX: biweekly folinic acid+fluorouracil+irinotecan hydrochloride+oxaliplatin).

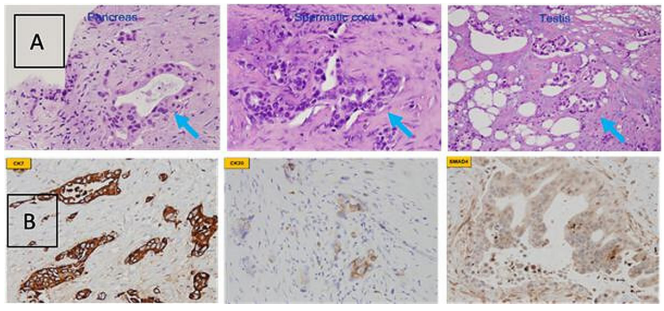

Figure 6 (A) Moderately differentiated adenocarcinoma of pancreas tissue with metastatic adenocarcinoma, characterised by multifocal glandular tumour nests infiltrating the spermatid cord and testicular tissue (arrow; H&E, ×400). (B) Positive immunohistochemical stains of CK7, CK20 and Smad4 (×400).

Follow-up and outcome

The patient's disease progressed following poor response to chemotherapy. Thus, the patient underwent palliative chemoradiation therapy approximately 4 months later.

DISCUSSION

Cancer metastasis to the testis has a prevalence of approximately 0.04%, with bilateral metastasis occurring in up to 15% of patients.[1 2] The average age range at the time of diagnosis of primary testicular cancer is 50–69 years.[9] The rarity of secondary cancer metastasis to the testis may be attributable to the low temperature of the scrotum or the blood–testis barrier.[8 10]

The most common cancers to metastasise to the testes are leukaemia, lymphoma, renal cell carcinoma, malignant melanoma, and prostate, lung and colorectal cancers. Rarely do thyroid cancer, oesophageal adenocarcinoma, pancreatic adenocarcinoma, gastric carcinoma, upper tract urothelial carcinoma, hepatocellular carcinoma or bladder cancer metastasise to the testis. In children, neuroblastoma, Wilms' tumour and rhabdomyosarcoma are common origins of metastasis.[3–8]

Zhang *et al* analysed the literature on pancreatic and ampullary tumours with metastasis to the testis from the last 40 years. A total of 15 cases were reported, predominantly among Japanese men. Typical disease presentation was one slowly enlarging (painless or painful) palpable mass in the scrotum and no specific gastrointestinal symptoms. The incidence of metastasis to the right and left testes from pancreatic cancer was the same. Among the 15 cases, 8 and 7 patients' carcinoma, respectively, originated from the pancreatic tail and from the pancreatic head or ampulla.[11]

The underlying path of pancreatic tumour metastasis to the scrotum remains unknown, although several studies have proposed local invasion of adjacent organs by pancreatic cancer, implicating their vasculature in pseudoaneurysms and subsequent distant hematogenous metastasis.[12–14] Other studies have proposed lymph node metastasis or direct transperitoneal seeding from peritoneal carcinomatosis through the tunica vaginalis.[12]

In our case, immunohistochemical staining was performed, and CK7, CK20 and SMAD4 were positive in the testicular tumour tissue, which is compatible with pancreatic adenocarcinoma. Physical examination of the patient revealed hardness of the left spermatic cord but no mass lesion in the left testis. No specific abnormal finding, such as a testicular tumour, was observed in the scrotal sonography.

Learning points

- For older men with testicular tumours, retroperitoneal tumour metastasis and pancreatic tumour should be considered, and comprehensive study should be performed to support a diagnosis.
- Atypical metastatic tumours in the male genital tract from pancreatic cancer are rare.
- Both physical examination and imaging, including sonography, are needed to make a diagnosis for patients such as ours, especially when they present with a metastatic testicular mass.

Chemotherapy is suggested for metastatic pancreatic adenocarcinoma, although the literature does not specify an exact regimen to follow. At our multidisciplinary team conference, the specialist, by referring to the National Comprehensive Cancer Network Guidelines (version 2, 2021),[15] advised that modified FOLFIRINOX with (or without) subsequent chemoradiation therapy was the best approach for metastatic pancreatic adenocarcinoma. However, our patient had poor response to chemoradiation therapy.

Although atypical metastatic tumours in the male genital tract from pancreatic cancer are rare, thorough examination to elucidate tumour origin is warranted in men of an advanced age.

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REFERENCES

1 Dutt N, Bates AW, Baithun SI. Secondary neoplasms of the male genital tract with different patterns of involvement in adults and children. *Histopathology* 2000;37:323–31.
2 Ulbright TM, Young RH. Metastatic carcinoma to the testis: a clinicopathologic analysis of 26 nonincidental cases with emphasis on deceptive features. *Am J Surg Pathol* 2008;32:1683–93.
3 Gillen S, Feith M, Gertler R, *et al*. Testicular metastasis from adenocarcinoma of the esophagus. *Ann Thorac Surg* 2009;87:957–9.
4 Cormio L, Sanguedolce F, Massenio P, *et al*. Testicular metastasis as the first clinical manifestation of pancreatic adenocarcinoma: a case report. *J Med Case Rep* 2015;9:139.
5 Li B, Cai H, Kang Z-C, *et al*. Testicular metastasis from gastric carcinoma: a case report. *World J Gastroenterol* 2015;21:6764.
6 Manav AN, Kazan E, Ertek Mehmet Şirin, *et al*. A rare cause of testicular metastasis: upper tract urothelial carcinoma. *Case Rep Urol* 2014;2014:1–3.
7 Ramasamy R. Metastatic tumors to testis. *Urol Ann* 2013;5:220.
8 Wang CH, Yang S. Testicular metastasis from hepatocellular carcinoma. *Int J Urol* 2006;13:1033–4.
9 LY L, Kuo JY, Lin AT. Metastatic tumors involving the testes. *J Urol ROC* 2000;11:12–17.
10 Kiely G, Kavanagh L, Bolton D, *et al*. Urothelial carcinoma of the bladder with asynchronous metastases to both testes. *Urol Ann* 2013;5:218–9.
11 Zhang Y-R, Ma D-K, Gao B-S, *et al*. Tunica vaginalis testis metastasis as the first clinical manifestation of pancreatic adenocarcinoma: a case report. *World J Clin Cases* 2021;9:4244–52.
12 Aquino NM, Mortan R, Singh H. Carcinoma of pancreas metastasizing to the tunica vaginalis testis. *J Clin Ultrasound* 1989;17:287–90.
13 Dookeran KA, Lotze MT, Sikora SS, *et al*. Pancreatic and ampullary carcinomas with intrascrotal metastases. *Br J Surg* 1997;84:198–9.
14 Di Franco CA, Rovereto B, Porru D, *et al*. Metastasis of the epididymis and spermatic cord from pancreatic adenocarcinoma: a rare entity. description of a case and revision of literature. *Arch Ital Urol Androl* 2018;90:72–3.
15 Tempero MA, Malafa MP, Al-Hawary M, *et al*. Pancreatic adenocarcinoma, version 2.2021, NCCN clinical practice guidelines in oncology. *J Natl Compr Canc Netw* 2021;19:439–57.