CASE REPORT

Severe panniculitis and polyarthrititis caused by acinar cell carcinoma arising from an ectopic pancreas

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SUMMARY

The pancreatitis, panniculitis and polyarthrititis (PPP) syndrome is a rare condition caused by pancreatic diseases, such as acute or chronic pancreatitis or pancreatic carcinoma. We report the first case of PPP syndrome caused by metastatic acinar cell carcinoma from an ectopic pancreas. The symptoms were successfully managed by the treatment of the metastatic carcinoma. Pancreatic cytosteatonecrosis should be always considered in a patient who is showing symptoms of panniculitis and polyarthrititis.

BACKGROUND

The pancreatitis, panniculitis and polyarthrititis (PPP) syndrome is a rare condition caused by several pancreatic diseases. Approximately 60 cases have been reported. Concerning the underlying pancreatic condition, around 50% of cases are tumours, with the others occurring in chronic and acute pancreatitis.¹ The most frequent underlying pancreatic malignancy associated to PPP syndrome is metastatic acinar cell carcinoma.² The exact physiopathology of this entity is still unclear. It is purported to be due to extravasation of pancreatic lipolytic enzymes such as lipase, amylase and trypsin from the systemic circulation in the peripheral tissues mainly in the skin and the joint space.

Figure 2 Radiological, gross and histological features of the primary tumour: (A) abdominal CT shows a mass attached to the fourth part of the duodenum; (B) duodenum segment in the wall of which sat an 8-cm-wide, subserosal nodular tumour; (C) microscopically, the tumour (arrowhead) showed a trabecular and acinar pattern with a rich vascular network. Just next to the tumorous nodule sat an ectopic pancreatic tissue (arrow), composed of ducts, acini and islet cells (H&E stain, 20-fold magnification).

Figure 1 Clinical presentation: (A) of the fingers on the right hand; (B) very painful swelling of the second toe on his left foot; (C) severe left knee effusion; (D, E) highly inflammatory pretibial panniculitis.

High lipase levels in aspirated fluid are generally measured. This leads to tissue destruction and secondary inflammation promoted by free fatty acid from hydrolysed triglycerides.³

Only 17 cases of pancreatic-type acinar cell carcinomas located in extra-pancreatic sites have been reported in the literature.^{4–17} Eight occurred in the stomach, two in the duodenum, two in the liver, one in a peripancreatic lymph node, one in the omentum, two in the jejunum and one in the colon. Most often, cancerisation occurred in a context of pancreatic metaplasia (eg, stomach) which is supposed to be the origin of the tumorous evolution. In some cases, carcinoma was supposed to derive from neoplastic transdifferentiation of common precursor cells (eg, in the liver). Another aetiology is cancerisation of a pre-existing ectopic pancreas. Ectopic pancreas tissue can be found in 2%–15% of autopsy cases¹⁸ and 0.25% of laparotomies.¹⁹ However, cancerisation of ectopic pancreas tissue is extremely rare and can develop from any part of the gland. Most of the reported cases are adenocarcinoma.^{4,20}

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Figure 3 Investigations: (A) high-power Doppler positivity of the subcutaneous fat layer; (B) multiple distal femur and proximal tibia bone infarcts, cortical bone resorption of the lateral condyle; (C) arthroscopy of the left knee showing fat floating inside; (D) synovial biopsy showing fibrinoid necrosis and foamy macrophages indicating fat necrosis (H&E stain).

Here we describe the first case of a PPP syndrome in association with acinar cell carcinoma developed in an ectopic pancreas without an underlying disease of the orthotropic pancreas. The purpose of this case report is to highlight the clinical, radiological and synovial features of this very rare syndrome.

Figure 4 Follow-up: (A) painless swelling on the left hand appearing 1 month after treatment; (B) creamy, viscous, yellowish fluid obtained by puncture of these lesions.

CASE PRESENTATION

A 75-year-old man was admitted in our rheumatology department with a 4-week history of fever, painful inflammatory digits (figure 1A,B), a left knee effusion (figure 1C) and lower legs tender subcutaneous nodules (figure 1D,E). The patient did not have abdominal, urinary or respiratory complaints.

One year previously, the patient had suffered from an acinar cell carcinoma arising from an ectopic pancreas in duodenum (figure 2A–C). Although the cancer was removed completely, he developed liver metastases which were unsuccessfully treated with gemcitabine-oxaliplatin and fluorouracil-irinotecan chemotherapy.

INVESTIGATIONS

Color-Doppler ultrasound examination showed diffuse inflammation of subcutaneous fat on his fingers (figure 3A) and lower extremities. Knee aspiration retrieved 80 mL of synovial fluid containing 22 018 white blood cell/ μ L and high titres of lipase (2713 IU/L). Serum lipase and C-reactive protein levels were also respectively high (16 230 IU/L; normal <60 IU/L) (315 mg/L; normal <0.5 mg/L). Anticardiolipin antibodies, rheumatoid factor, antinuclear antibodies and antineutrophil cytoplasmic antibodies were negative. CT scan of the left knee (figure 3B) depicted distal femur and proximal tibia bone infarcts, as well as cortical bone resorption of the lateral condyle. Arthroscopic examination of the knee showed free floating fat in the joint (figure 3C). Synovial histology (figure 3D) revealed the presence of foamy macrophages and fibrinoid necrosis.

TREATMENT

Intra-articular triamcinolone, intravenous 1000 mg methylprednisolone and oral glucocorticoid did not improve the symptoms. Liver metastases were then successfully treated by yttrium-90 radioembolisation, and we observed a rapid improvement of the polyarthritis and subcutaneous lesions. Serum lipase nearly dropped to normal levels (143 IU/L; normal <60 IU/L).

OUTCOME AND FOLLOW-UP

One month later, painless swellings on the right hand reappeared (figure 4A). Aspiration retrieved liquefied fat (figure 4B). In 2017, a second radioembolisation was performed and no recurrence of panniculitis or arthritis was observed. We therefore considered the metastatic pancreatic carcinoma as the cause of the PPP syndrome.

DISCUSSION

The clinical features in our patient are concordant with those described in literature and support the hypothesis that PPP syndrome is due to the extravasation of lipolytic enzymes. However, in our case, we add an extensive illustration of the joint pathology, including a synovial tissue analysis. Acute alteration of general state, fever and arthralgia is often the first symptoms. Skin nodules can develop in any part of the body but are mostly localised around knees, pretibial regions and ankles. They are spectacular, deep, highly inflammatory and can even fistulate. Polyarthritis is the most common presentation but oligoarticular and monoarticular presentation has also been reported. Ankles, knees, wrists and metacarpophalangeal are the most commonly affected joints.²¹ Severe bone pain is due to intramedullary bone fat necrosis and secondary bone damage that can lead to pathological fractures and chronic pain.²²

Learning points

- Polyarthritis and panniculitis can be rarely associated to pancreatic acinar cell carcinoma.
- To diagnose pancreatitis, panniculitis and polyarthritis syndrome, measurement of serum lipase levels and a complete abdominal work-up by medical imagery are essential. Concomitant abdominal symptoms can be absent or only mild.
- Manifestations usually regress with the treatment of the underlying pancreatic disease. Glucocorticoids are ineffective.
- Cancerisation of ectopic pancreas tissue is extremely rare but it exists.

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