SOHC
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Unlikely five-year survival after R1 resection and metachronous oligometastasis in pancreatic ductal adenocarcinoma

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Background

Despite continuous advances in oncological therapy, the **outcome of pancreatic ductal adenocarcinoma (PDAC) remains dismal**. **Prognosis** is further influenced by factors such as **R1** resection, adherence to **adjuvant therapy**, and the presence of **metastases**. Nevertheless, some patients defy expectations and achieve long-term survival.

Case presentation

A woman in her fifties with metabolic syndrome and type 2 diabetes mellitus was diagnosed with **PDAC** (**figure 1**). Due to<180° involvement of the superior mesenteric vein (SMV) and encasement of the right gastric artery it was deemed **borderline resectable**. After one cycle of mFOLFIRINOX, **induction chemotherapy** was switched to gemcitabine and nab-paclitaxel due to intolerable diarrhoea, cholangitis, and dehydration. Following four dose-reduced cycles, she underwent **capecitabine-based radiochemotherapy (58.8 Gy)**, after which the tumour was deemed resectable. Despite a rise in CA 19-9 (max. 60 U/ml, nadir 20 U/ml, at 1st diagnosis 340 U/ml), PET-CT revealed **no metastases**. A **partial pancreaticoduodenectomy** (Kausch-Whipple technique) was performed. While intraoperative frozen sections suggested negative margins, final histopathology revealed **extensive perineural invasion** reaching the medial margin, confirming **R1 resection** (**figure 2**).

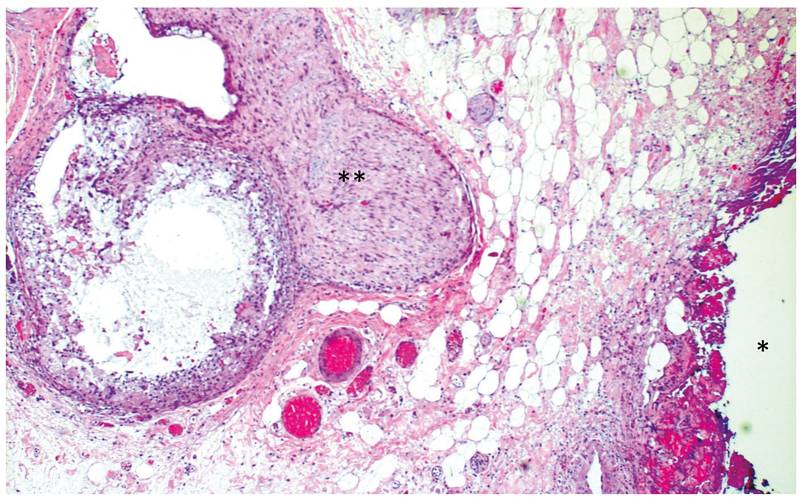

Figure 2. H&E stain ≈5× objective: perineural invasion (**), reaching the medial resection margin (*), confirming R1 resection.

Adjuvant chemotherapy was discontinued after one cycle of gemcitabine/nab-paclitaxel due to severe fatigue. On surveillance, **two years postoperatively**, bilateral **pulmonary metastasis** (**figure 3**) were histologically confirmed as PDAC harbouring ***KRAS p.G12V* and *TP53* mutations** and treated with **cryoablation**. She remains **disease-free** three years later, corresponding to **five years after initial surgery**.

Discussion

Even with optimal induction therapy, R0 resection and complete adjuvant Chemotherapy, the **5 year survival rate of borderline resectable PDAC rarely exceeds 20%**.

High short-term mortality results from early **complications** related to both the **disease** and its **treatment**, from rapid **disease progression**, and from the **absence of effective palliative options**.

The role of **oligometastatic approaches in PDAC** remains uncertain, and prospective randomized trials are urgently needed to define their benefit.

Our case defies expectations, as the patient exhibited multiple adverse prognostic factors: incomplete induction and adjuvant chemotherapy, R1 resection, metachronous pulmonary metastases, and concurrent *KRAS* and *TP53* mutations — yet achieved long-term survival.

Conclusions

- **Long-term survival is possible in PDAC** despite adverse prognostic factors.
- This case highlights the **importance of individualized multimodal therapy** and the **need for biomarkers** to distinguish patients who may benefit from aggressive treatment from those unlikely to do so.

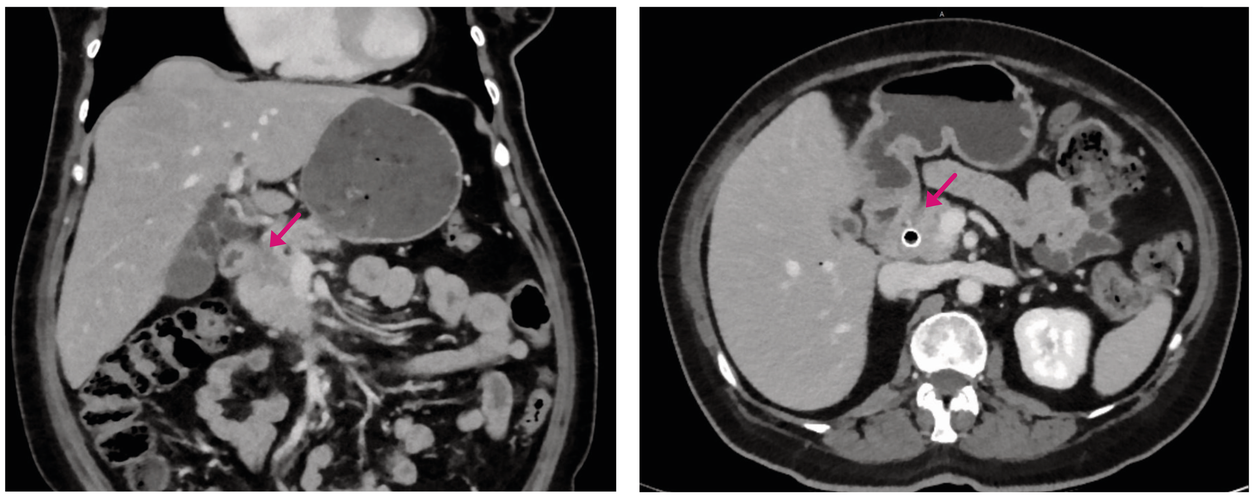

Figure 1. Initial CT showing the pancreatic head mass (arrows).

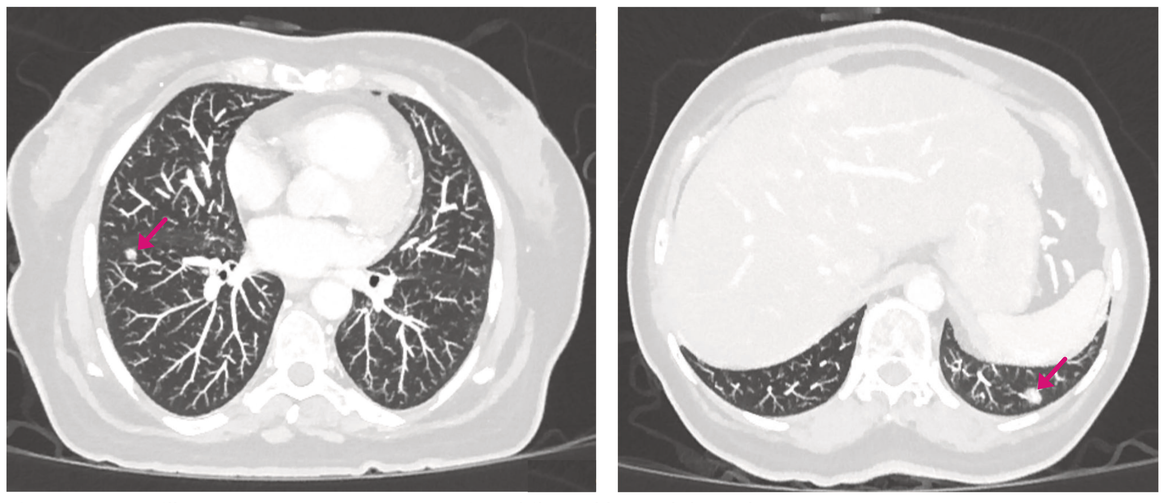

Figure 3. Surveillance CT (2 years post-operation): bilateral lower-lobe pulmonary metastases (arrows).

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