

# **Patterns of abdominal recurrence and metastasis following resection of pancreatic adenocarcinoma: Experience from a National Surgical Centre for Pancreatic Cancer**

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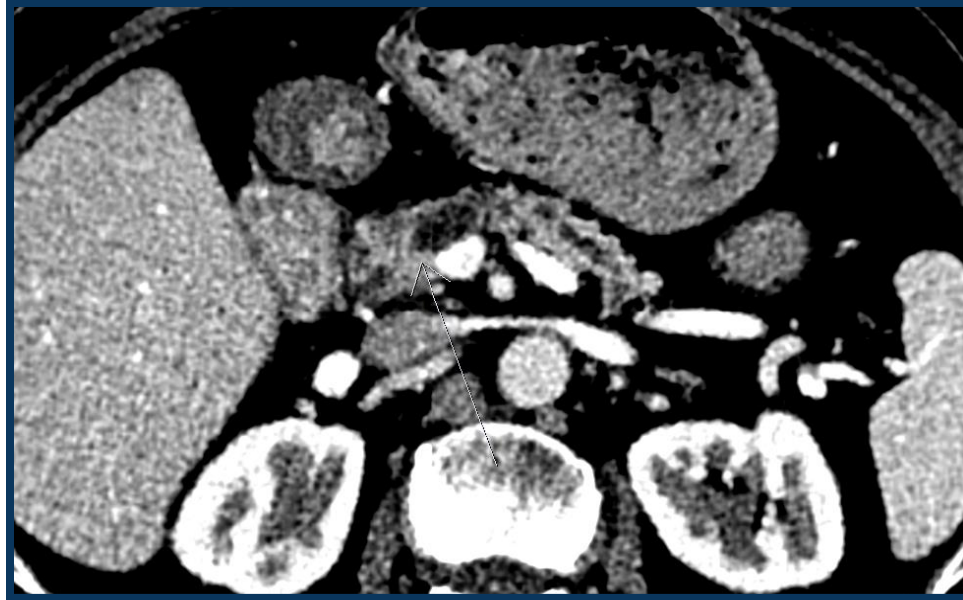
# Purpose

- To discuss the abdominal recurrence patterns of pancreatic adenocarcinoma following resection which are picked up on surveillance imaging.
- To provide a diagnostic tool of 'check-areas' which should be adopted while reporting post-operative imaging in this patient population.

# Purpose

- Pancreatic ductal adenocarcinoma is the 2<sup>nd</sup> most common gastrointestinal malignancy after colorectal carcinoma.
- Current treatment options are poor with less than 10% of patients surviving 5 years from diagnosis.
- The best outcomes are achieved in patients who have a complete resection (R0).
- 80% of patients who undergo resection will have disease recurrence.
- Diagnostic radiology plays a key role in the follow-up and surveillance of these patients in the post-operative phase of their disease.

# Purpose



Axial post contrast CT of the pancreas demonstrating the a hypo-attenuating mass in the pancreatic head (arrow). The upstream pancreatic duct is tortuous and dilated and there is atrophy of the pancreatic parenchyma. Cytology confirmed a pancreatic ductal adenocarcinoma.

# Materials and methods

- Retrospective analysis of a prospectively maintained database of all patients undergoing resection of pancreatic or peri-ampullary adenocarcinoma at our National Surgical Centre for Pancreatic Cancer (NSCPC).
- The study population included patients who were deemed resectable on a pre-operative abdominal CT and later went on to have a resection for a pancreatic ductal adenocarcinoma between January 1st 2010 to December 31st 2015.
- Each case was reviewed at the Multidisciplinary meeting (NSCPC MDT) attended by surgeons, pathologists, oncologists and radiologists. Treatment decisions were reached by consensus.

# Materials and methods

- Exclusion criteria included patients with borderline resectable disease, patients who had neo-adjuvant chemotherapy, patients with peri-ampullary cancers with intestinal histology and patients who did not have a pre-operative contrast enhanced CT abdomen.
- Continued surveillance of this patient cohort was performed with a standard post contrast Computed Tomography (CT) Thorax, Abdomen and Pelvis up to 31th December 2017.
- Recurrence data was collected using the institutional and national radiology data information systems, chart review and physician follow-up.

# Results

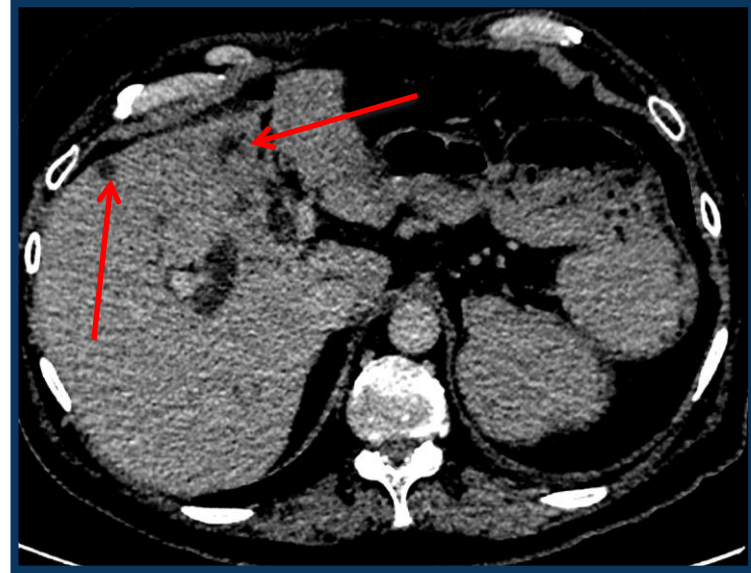
- 210 patients underwent successful resection of pancreatic or peri-ampullary adenocarcinoma.
- Disease recurrence or metastatic disease were identified in 130 patients on follow up CT (61%).
- 117/130 (90%) developed disease in the abdomen (the lung was the most common extra-abdominal site of metastatic disease).
- 26 (20%) patients had more than one site of disease progression on their surveillance CT.

## Abdominal recurrence site prevalence –

- 67/117 (57%) - Metastasised to the liver.
- 36/117 (31%) - Local recurrence at the resection site.
- 17/117 (14.5%) - Peritoneum
- 7/117 (6%) - Isolated nodal metastasis
- 3/117 (2.5%) - Retroperitoneal metastasis
- 1/117 (0.8%) - Left adrenal and kidney
- 1/117 (0.8%) - Duodenum
- 1/117 (0.8%) - Developed a malignant biliary stricture.

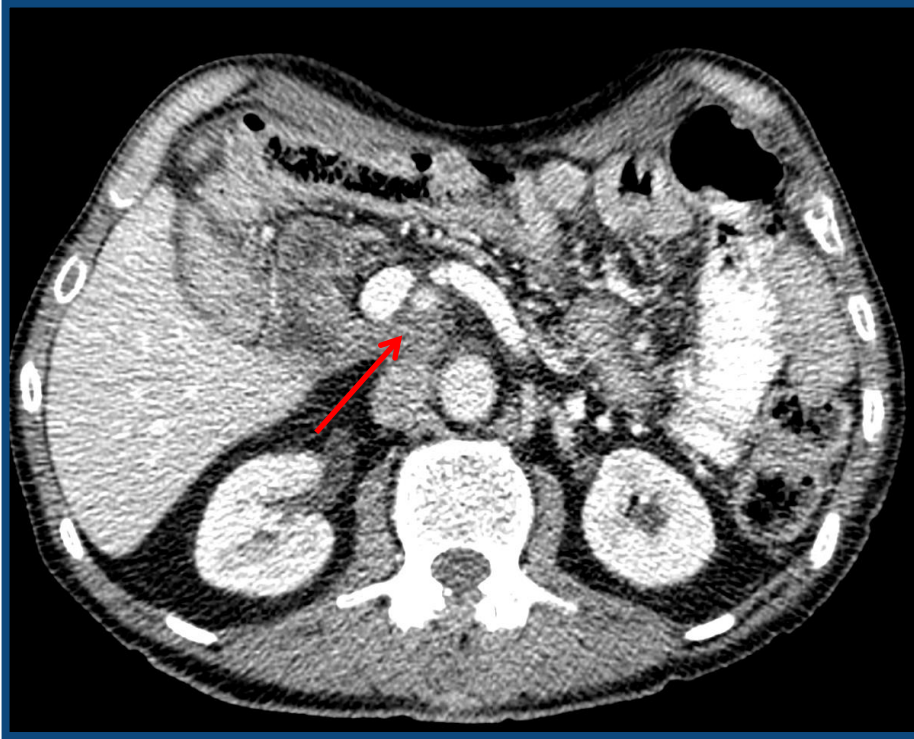


# Results



Axial CT sections through the liver. There are multiple hypoattenuating liver lesions consistent with metastasis (red arrows).

# Results



Axial post contrast CT at the level of the pancreatic head. There is a soft tissue mass posterior to the SMA which was new from the prior post-operative CT scan. The soft tissue mass is consistent with local disease recurrence (red arrow).

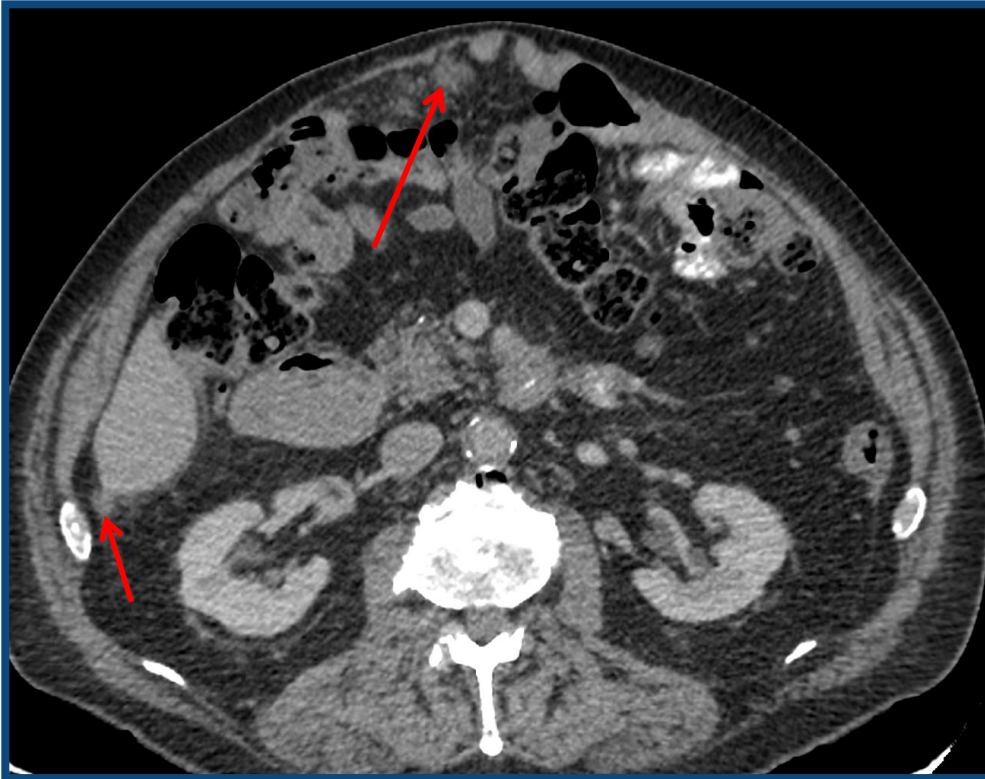
# Results



Axial post contrast CT at the level of the portal vein. There is a soft tissue mass in the tail of the pancreas new from the prior study consistent with a metastasis (yellow arrow).

Multiple hypo-attenuating liver lesions with peripheral enhancement consistent with multi-focal metastatic disease to the liver (red arrows).

# Results



Axial post contrast CT at the level of the kidneys. There are soft tissue peritoneal nodules which are new compared to the prior post-operative CT (red arrows). These findings are consistent with multifocal peritoneal metastasis.

# Conclusion

- This study provides an aid for reporting surveillance imaging in patients post resection for pancreatic/peri-ampullary adenocarcinoma, highlighting both the common and rare sites of abdominal metastasis.

# References

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