DIAGNOSTIC IMAGING PATHWAYS

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PATIENT WITH NEWLY DIAGNOSED PANCREATIC CANCER

Pathway last reviewed April 2009. Pathways will be reviewed periodically and updated as necessary.

CT Abdomen

Apparently resectable tumour and patient candidate for radical surgery

Unresectable tumour or resectable tumour but patient not candidate for radical surgery

Palliative Treatment

CT is only moderately accurate at determining resectable disease. The aim of further investigation is to more accurately determine resectable disease. The most appropriate investigations to do this will depend on local resources and expertise

Is PET scan and/or EUS available?

Yes

No

Surgical resection may be attempted based on CT results alone

The order of investigations varies but commonly

Staging laparoscopy sometimes used prior to laparotomy

PET Scan

No Metastatic Disease

Metastatic Disease

Palliative Treatment

Is endoscopic ultrasound (EUS) available?

EUS

No

Yes

Surgery

Apparently Resectable

Non Resectable

Surgery

Palliative Treatment

NEWLY DIAGNOSED PANCREATIC CANCER

- This pathway outlines the staging investigations used to determine if a patient is suitable for potentially curative surgery.
- Surgical resection involving pancreaticoduodenectomy is the only potentially curative treatment for patients but it does have a significant risk of morbidity. 1
- Accurate staging of patients is therefore very important for determining those patients who will benefit from surgery.

COMPUTED TOMOGRAPHY

- Involves the use of intravenous contrast and timed image sequences that enable the evaluation of vascular structures around the pancreas.
- Features:
    - Very accurate at determining unresectable disease with positive predictive values for unresectability varying from approximately 89% to 100%. 2-4,6,
    - For determining resectability, the sensitivity of spiral CT is 81-90% and specificity is 82%. This is comparable to conventional CT and MRI. However, spiral CT has the added benefit of superior sensivity (91-98%) for the initial diagnosis of pancreatic carcinoma compared to conventional CT (86%) and MRI (84%). 23-25
    - Multidetector CT (MDCT) with multiplanar reformatted images offers improved evaluation of vascular involvement and liver metastases and is more accurate in assessing tumour resectability compared to single detector CT. The positive predictive value for detemining resectability is 91%. 26-28
    - Demonstration of tumour involvement of more than one half of the circumference of major vessels is highly specific for unresectable tumour. 5
- Limitations:
    - Missed liver and lymph node metastases and missed vascular invasion of major peripancreatic vessels are the main causes for a false diagnosis of resectability. 4,6,14

POSITRON EMISSION TOMOGRAPHY (PET)

- Benefit of FDG-PET in staging pancreatic cancer has not been conclusively proven and it is currently not rebatable under Medicare for this indication.
- There have been conflicting studies as to the usefulness of PET and its cost effectiveness. 21,22
- However PET has several potential advantages:
    - Non invasive means of determining if a patient has metastatic disease.
    - The findings on PET scan can lead to a reduction in unnecessary laparotomies in patients with incurable disease. 7,22
    - In another study, the addition of PET to CT altered surgical management in 43% of patients with suspected pancreatic carcinoma. 8
    - In patients with pancreatic carcinoma, PET has been shown to be betterr than CT at detecting hepatic metastases greater than 1cm in size. 9
    - Has an approximately 61% sensitivity for detecting lymph node metastases in patients with pancreatic cancer. 10

ENDOSCOPIC ULTRASOUND (EUS)

- Not available at all centres but is useful for identifying unresectable pancreatic tumours.
- Patients are given conscious sedation usually with fentanyl and midazolam and an echo-endoscope is passed to the second part of the duodenum to view the pancreas.
- The results of studies looking at the accuracy of EUS in the staging of pancreatic cancer have been highly variable due to various factors. 11
- Seems to most useful in staging small tumours less than 2-3cm in size. 12,13
- The accuracy of EUS for determining unresectable disease has varied from approximately 71-96%. 11,15-19
- As the accuracy of CT improves with the introduction of faster, higher resolution helical scanners, the future role of endoscopic ultrasound may change.

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