UNOPERATED patients with unoperated infra-renal aortic aneurysms. Adjustments between groups were made for age, sex, mean arterial pressure, creatinine and the presence of diabetes using linear regression analysis. PWV was represented as the mean [95% CI lower-upper].

**Results:** A total of 105 studies were performed, CONTROL n=27, THORACIC n=30, ABDOMINAL n=25, UNOPERATED n=23. The ABDOMINAL group had an adjusted PWV of 11.9m/s [10.8-13.1], significantly higher than CONTROLS 8.8m/s [8.5-9.2] (p<0.001), THORACIC 8.8m/s [8.0-9.6] (p<0.001), and UNOPERATED 8.9m/s [8.0-9.8] (p<0.001).

**Conclusions:** These data suggest that the replaced abdominal aorta reduces arterial compliance. Thoracic grafting does not have an effect on PWV indicating that the proximal aorta contributes less to tonometric measurements of arterial stiffness. We provide a basis for future work to investigate how prosthetic aortic replacement affects ventricular-arterial coupling and the impact of pharmacological manipulation of vascular function in such patients.

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**PROGNOSTIC SIGNIFICANCE OF TOTAL DISEASE LENGTH IN OESOPHAGEAL CANCER**


**Background:** Oesophageal tumour length has long been considered an important prognostic indicator in oesophageal cancer (OC), and typically an operable tumour has been considered to be T1-3, N0-1, M0, with an endoscopic defined length of 5 cm or less.

**Aims:** The aim of this study was to test the hypothesis that endoluminal ultrasound (EUS) defined total length of disease (including both the primary tumour and the position and number of proximal and distal lymph nodes – ELoD) and the associated EUS lymph node metastasis count (ELNMC) are better predictors of outcome than endoscopic OC length and radiological TNM stage in patients undergoing potentially curative therapy with either surgery or definitive chemoradiotherapy (dCRT).

**Methods:** 610 consecutive patients diagnosed with OC and managed by a multidisciplinary team were staged by CT and EUS. The primary outcome measure was survival from date of diagnosis.

**Results:** 302 patients received surgery and 308 patients received dCRT. Univariable analysis revealed that survival was related to EUST (p<0.001), N (p<0.001), M1a (p=0.04) stage, ELoD (p=0.009), ELNMC (p<0.001), and treatment type (p=0.003). Multivariable analysis revealed two factors; ELoD (HR 0.960 95%CI 0.923-0.999, p=0.047) and ELNMC (HR 1.123, 95%CI 1.062-1.188, p=0.001) were independently associated with survival.

**Conclusion:** ELoD and ELNMC should become part of routine OC radiological staging reports to optimise stage directed therapeutic outcomes.

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**ROLE OF POSITRON EMISSION TOMOGRAPHY (PET) IN PANCREATIC RESECTION FOR SUSPECTED PANCREATIC AND PERIAMPUTRAL CANCER**

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**Background:** A significant proportion of patients undergo unnecessary laparotomy because of incorrect diagnosis and understaging of pancreatic and periampullary cancer.

**Methods:** A systematic review of studies assessing PET was performed. Medline, Embase, Cochrane trials register, and Science Citation Index were searched until November 2009. The gold standard test was laparotomy with histological confirmation. Meta-analysis was performed using bivariate method and Littenberg-Moses method.

**Results:** Seven studies including 336 patients were included in the meta-analysis for distinguishing benign from malignant disease. The summary sensitivity and specificity were 0.892 and 0.745. This corresponds to a post-test probability of 0.51 for a positive PET and 0.30 for a negative PET, compared to a baseline probability of 0.75. Two studies including a total of 199 patients (who had undergone CT scan as standard work-up) were included in the meta-analysis for assessing resectability with curative intent. The summary sensitivity and specificity were 0.92 and 0.87. This corresponds to a post-test probability of 0.56 for a positive PET (i.e. patient has a 44% probability of curative resection if PET was positive) and 0.02 for a negative PET (i.e. patient has a 98% probability of curative resection if PET was negative) compared to a baseline probability of 0.15 (i.e. patient has an 85% probability of curative resection if laparotomy was done without PET).

**Conclusions:** PET has no role in distinguishing benign and malignant periampullary disease. A positive PET scan is unreliable but a negative PET scan can confirm curative resectability with high accuracy.

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**AN ANALYSIS OF TUMOURIGENESIS IN HUMAN MESENCHYMAL STEM CELLS EXPANDED IN VITRO**

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5-10% of fractures demonstrate significantly delayed healing or non-union. Although skeletal fixation has achieved limited success, no ideal treatment for non-union exists. One potential is the use of human mesenchymal stem cells (hMSCs) to enhance fracture healing. While hMSCs display immunosuppressive properties reducing the likelihood of rejection, side-effects could include tumourigenesis.

**Objectives:**
1. Do hMSCs become tumourigenic when expanded in vitro and grown on agar?
2. Do time, cell concentration and passage number affect tumourigenesis?

**Materials & Methods:** hMSCs were obtained from bone marrow aspirates from iliac crests of patients undergoing surgical treatment for non-union tibial fractures. Cells from 4 patients at 3 passages, positive (HCT cells) and negative control lines (AA/CI cells), were seeded onto agar plates at different concentrations. Plates were incubated at 37°C, 5% CO2 for 4 weeks. Tumour colony numbers (image 1) and tumourigenicity were calculated weekly.

**Image 1: Tumour colony**

![Tumour colony image](Image)

Scale Bar: 20µ = 2cm

**Results:**
1. hMSC lines produced no colonies (p<0.001)
2. Higher cell concentrations result in increased colony numbers (p<0.001)
3. Colony numbers decreased with time (p<0.001)

**Conclusions:** Tumourigenesis did not occur in hMSC's expanded in vitro. These results may support existing studies confirming hMSC's can be safely expanded in vitro for therapeutic use.

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