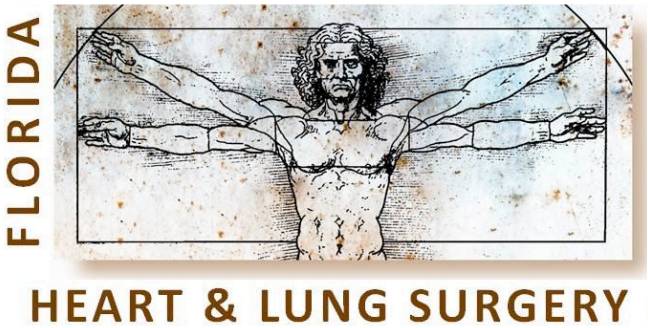
Review of Thoracic Surgical Oncology



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Lung cancer surgery

Large UK study establishes modern mortality standards for lung cancer resection

Thorax. 2013 May 17. Early mortality after surgical resection for lung cancer: an analysis of the English National Lung cancer audit. Powell HA, Tata LJ, Baldwin DR, Stanley RA, Khakwani A, Nottingham Respiratory Research Unit, University of Nottingham, City Hospital, , Nottingham, UK. INTRODUCTION: For appropriately staged non-small cell lung cancer (NSCLC) surgical resection can dramatically improve survival, but some may not be offered this treatment because of concerns about perioperative mortality. METHODS: We used data from the National Lung Cancer Audit (NLCA) to determine the proportions of English patients who died within 30 and 90 days after surgery for NSCLC. We quantified the predictors of early postoperative death and using these results devised a score to predict risk of death within 90 days of surgery. RESULTS: We analysed data on 10 991 patients operated on between 2004 and 2010. Three per cent (334) of patients died within 30 days of their procedure and 5.9% (647) within 90 days. Age was strongly associated with early postoperative death (adjusted OR within 90 days for 80-84 years vs 70-74 years: 1.46, 95% CI 1.07 to 1.98); significant associations were also observed with performance status (PS) (adjusted OR within 90 days for PS 2 vs PS 0: 2.40, 95% CI 1.68 to 3.41), as well as lung function, stage and procedure type. CONCLUSIONS: Our results show that age is the most important predictor of death within both of these early postoperative periods. We used the data in the NLCA to develop a predictive score, based on an English population and specific to lung cancer surgery, which estimates risk of death within 90 days; this score should be tested in future cohorts.

Editor's commentary: Broken down by procedure, the authors found a 90 day mortality for pneumonectomy of 11.5 % and for lobectomy, 4.6%. Use of minimally invasive techniques is not reported so one has to wonder if all of these patients are getting a traditional thoracotomy? The risk factors identified are familiar to anyone who cares for these patients: age, stage, PS, and lung function. It is interesting to see that the risk for lobectomy is 2.3% at 30d and 2.3% at 90d, implying that the risk is level for at least three month's following operation. This seems to run counter to intuition and experience but this does imply that for some patients, an extended period of follow up is warranted. The finding of a mortality of over 10% for pneumonectomy is not surprising and re-enforces the practice of avoiding this operation if a lung sparing option such as sleeve resection is available.

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Esophageal cancer

Clinical response does not correlate with pathologic response in neoaduvant esophageal patients

Ann Oncol. 2013 May;24(5):1262-6. Association between clinical complete response and pathological complete response after preoperative chemoradiation in patients with gastroesophageal cancer: analysis in a large cohort. Cheedella NK, Suzuki A, , Hofstetter WL, Maru DM, Taketa T, Sudo K, Blum MA, Lin SH, Welch J, Lee JH, Bhutani MS, Rice DC, Vaporciyan AA, Swisher SG, Ajani JA. Department of Gastrointestinal Medical Oncology, Unit 426, The University of Texas MD Anderson Cancer Center, 1515 Holcombe Boulevard, Houston, TX 77030, USA. BACKGROUND: Chemoradiation followed by surgery is the preferred treatment of localized gastroesophageal cancer (GEC). Surgery causes considerable life-altering consequences and achievement of clinical complete response (clinCR; defined as postchemoradiation [but presurgery] endoscopic biopsy negative for cancer and positron emission tomographic (PET) scan showing physiologic uptake) is an enticement to avoid/delay surgery. We examined the association between clinCR and pathologic complete response (pathCR). PATIENTS AND METHODS: Two hundred eighty-four patients with GEC underwent chemoradiation and esophagectomy. The chi-square test, Fisher exact test, t-test, Kaplan-Meier method, and log-rank test were used. RESULTS: Of 284 patients, 218 (77%) achieved clinCR. However, only 67 (31%) of the 218 achieved pathCR. The sensitivity of clinCR for pathCR was 97.1% (67/69), but the specificity was low (29.8%; 64/215). Of the 66 patients who had less than a clinCR, only 2 (3%) had a pathCR. Thus, the rate of pathCR was significantly different in patients with clinCR than in those with less than a clinCR (P < 0.001). CONCLUSIONS: clinCR is not highly associated with pathCR; the specificity of clinCR for pathCR is too low to be used for clinical decision making on delaying/avoiding surgery. Surgery-eligible GEC patients should be encouraged to undergo surgery following chemoradiation despite achieving a clinCR.

Editor's commentary: This article is a direct attempt to answer the question: "If my patient achieves a complete response to chemoradiation, why should they go on to have a resection?" Complete clinical response was defined as a biopsy negative EGD, and a PET scan with only "physiologic" activity (whatever that means). Not surprisingly, patients in this category still had evidence of cancer on final pathology in 69% of patients, meaning a chance for cure is missed in over 2/3 of such patients if they do not go on to resection.

Lung cancer

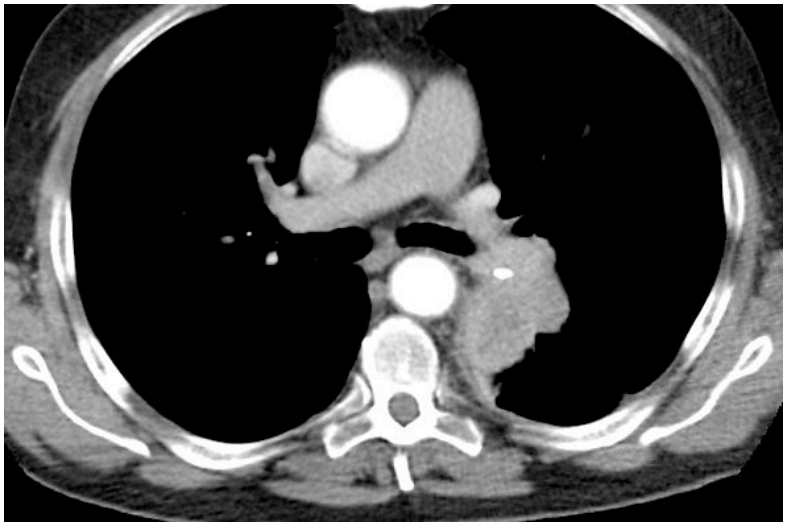
Meta-analysis shows long term anticoagulation for lung cancer patients can prolong survival

Thorax. 2013 May;68(5):442-50. Efficacy and safety of adjunctive anticoagulation in patients with lung cancer without indication for anticoagulants: a systematic review and meta-analysis. Zhang J, Zhang YL, Ma KX, Qu JM. Department of Pulmonary Medicine, Zhongshan Hospital, Shanghai Medical College, Fudan University, Shanghai, China. BACKGROUND: Patients with lung cancer are at high risk of venous thromboembolism (VTE), and VTE predicts a poor prognosis. Anticoagulation therefore might be beneficial for these patients. It is not clear whether anticoagulants could improve survival and other outcomes in patients with lung cancer with no indication for anticoagulation. METHODS: We searched the Web of Science, Medline, EMBASE and Cochrane databases for relevant studies. Two reviewers evaluated the studies and extracted data independently. The primary outcomes were 1-year survival and incidence of VTE. Pooled risk ratios (RR) were calculated using control as a reference group and significance was determined by the Z test. RESULTS: Nine eligible studies with 2185 participants were included. Anticoagulation showed significant improvement in survival at 1 year (RR 1.18, 95% CI 1.06 to 1.32; p=0.004) and at 2 years (RR 1.27, 95% CI 1.04 to 1.56; p=0.02), but not at 6 months. Subgroup analysis showed a survival benefit for patients with small cell lung cancer (SCLC) and those with non-advanced/limited cancer. The incidence of VTE (RR=0.55, 95% CI 0.31 to 0.97; p=0.04) and thromboembolic events (RR=0.48, 95% CI 0.28 to 0.82; p=0.008) was reduced with anticoagulation. Both vitamin K antagonist (VKA) and subcutaneous heparin increased the risk of haemorrhage, but heparin did not increase the incidence of major bleeding. CONCLUSIONS: Anticoagulation showed a survival benefit, especially for those with SCLC and prolonged life expectancy, and reduced the risk of VTE in lung cancer patients with no indication for anticoagulants. Subcutaneous heparin is superior to VKA because of a potentially smaller risk of major bleeding.

Editor's commentary: This is an interesting meta-analysis that suggests there is a survival advantage to long term anticoagulation independent of prevention of thrombo-embolic complications. In sub-group analysis, patients with small cell cancer, and all patients who had "non-advanced" disease showed a significant survival benefit. Interestingly, the best regimen was SQ heparin or LMWH, and not oral agents. So, I wonder, should postoperative patients receive long term low dose anticoagulation as adjuvant therapy? A nice topic for a study.

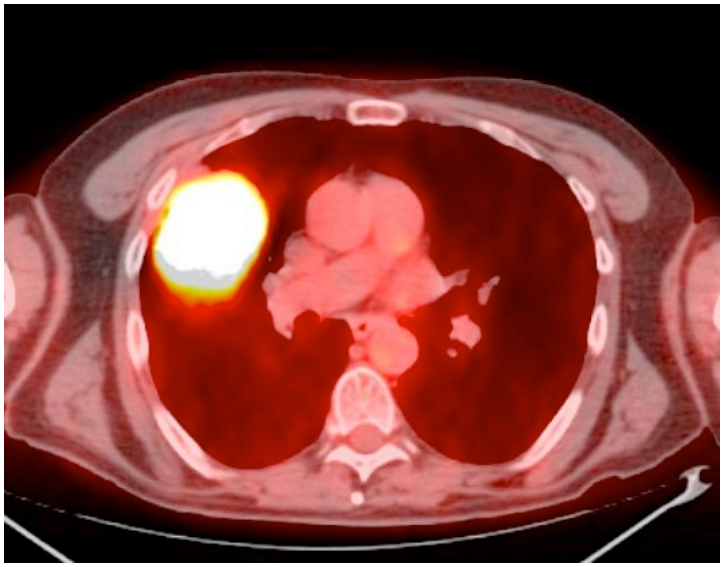
Limits of thoracic imaging in the detection of chest wall invasion

Its has always surprised me how difficult it can be to determine on preoperative imaging whether or not there is chest wall invasion in lung cancer patients. Here we present four recent cases and I'll let you guess based on the best images from each patient.



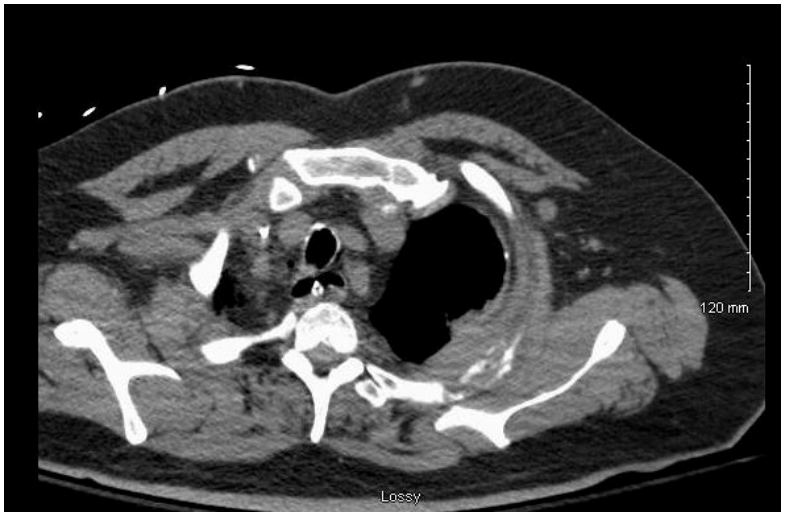
Case #1: 79 yo WM with progressive left sided chest pain.

Findings in OR: chest wall involvement requiring pneumonectomy and resection ribs 6-9.



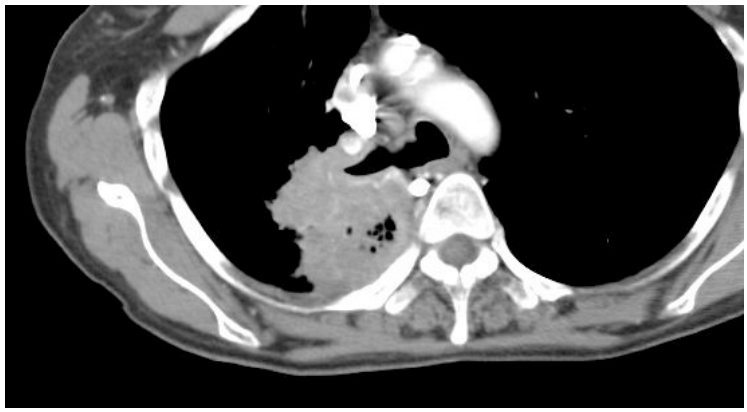
Case #2: 58 yo WM with new chest pain on the right.

Findings in OR: No chest wall involvement. Required RUL and RML bilobectomy



Case #3: 70 yo WM with progressive chest pain and biopsy proven NSCLC.

Findings in OR: LUL en bloc resection with ribs 2-5. (Note bony destruction of rib 4 above)



Case #4: 51 yoWF with progressive right shoulder pain.

Findings in OR: Pancoast resection of ribs 1-5and en bloc resection RUL

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