PJR April - June 2011; 21(2): 94-96

Commentary

There are four abstracts selected for this issue. The first two are review articles that appeared in the January 2011 issue of Clinical Radiology. These are followed by two original articles from the February 2011 issue of European Radiology.

The first of the reviews highlights the issue of failing dialysis fistulae. Reliable vascular access is a real issue with patient on long term haemodialysis. The best and most cost effective solution is a native arterio-venous fistula. Given proper care (and some luck) well made fistulae can last for over a decade. Given this it is important that fistulae which are failing be dealt with promptly and appropriately. The best modality for this is percutaneous therapy. This is now established as the first line treatment in this situation. Benta and colleagues reinforce this in their review and set out the basic principles of dealing with thrombosed arterio venous fistulae.

The second review by Offiah and Hall deals with an area of radiology that many of us struggle with and often do not do justice to the report. The post treatment neck. With the prevalence of head and neck cancer in our society and with the availability of advanced treatment modalities this is becoming a relatively common examination in a significant number of the practices in Pakistan. Familiarity with the appearances after radical neck surgery, radiation and most importantly reconstruction is essential. Unfortunately a significant number of patient either get over treated or undertreated because their imaging has been misinterpreted. The review detail the important issues and is a good beginning for those who have to deal with this problem.

Kim et al reinforce my long held belief that CT fluoroscopy is a modality still waiting for an application. The increased doses to the patient and operator are both enough not to warrant its routine use. I at least have not come across a patient that could be biopsied under CT fluoroscopy but not under conventional CT guided biopsy. I therefore do not use fluoroscopy despite having access to it.

Most of the radiological research is directed towards discovery and validation of new ways of imaging disease. Little effort goes towards discovering the impact of these new ways to image disease especially on outcomes. Screaton et al address the clinical impact of High Resolution CT of the lung. They find that it changes patient management in a significant number of patients. There is a dire need for studies such as this to establish the place of the newer ways of imaging disease.

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Clinical Radiology January 2011, 66(1):1-12

C.L. Bent, V.A. Sahni, M.B. Matson

The radiological management of the thrombosed arteriovenous dialysis fistula

Summary: Autogenous arteriovenous accesses have numerous proven advantages over PTFE accesses. As a result, the K/DOQI guidelines recommend a “fistula first” regime. Surgical interventions have been superseded by less invasive, endovascular options and involve both access maintenance and access salvage with a primary goal of venous preservation, due to limited anatomical sites for fistula formation.

Multiple percutaneous radiological techniques exist for the management of the thrombosed AVF. These invariably involve a combination of techniques, and incorporate initial thrombectomy followed by treatment of causative stenoses. No clear consensus exists as to the optimum technique.

Regardless of the method used, it is now well established that the role of the interventional radiologist is central in the management of the thrombosed AVF.

Clinical Radiology January 2011, 66(1):13-24

C. Offiah, E. Hall

Post-treatment imaging appearances in head and neck cancer patients

The radiological appearances of the post-treatment neck using computed tomography (CT), magnetic resonance imaging (MRI), and ultrasound can present a daunting array of changes that may hinder the identification and evaluation of important complicating factors in the head and neck cancer patient, most notably in relation to residual or recurrent neoplastic disease. Nevertheless, recurrent tumour is not the only change that warrants early detection in this particular patient group following surgical and chemo-radiotherapy management. Surgical neck dissection, as well as tissue reconstruction, can yield frequent false-positive clinical signs of recurrent disease as a result of asymmetrical soft-tissue bulk and rather complex cross-sectional imaging appearances. Both acute and chronic inflammatory post-treatment changes can masquerade as potential recurrent disease symptoms. In addition, secondary tumours can arise as a direct consequence of the treatment that cured the original tumour.

The present review aims to provide some guidance on potential changes that may arise in the post-treatment neck and the relevant radiological appearances.

European Radiology 21(2)

Ga Ram Kim, Jin Hur, Sang Min Lee1, Hye-Jeong Lee, Yoo Jin Hong, Ji Eun Nam, Hua Sun Kim, Young Jin Kim, Byoung Wook Choi, Tae Hoon Kim and Kyu Ok Choe

CT fluoroscopy-guided lung biopsy versus conventional CT-guided lung biopsy: a prospective controlled study to assess radiation doses and diagnostic performance

OBJECTIVE: We evaluated radiation doses, complication rates, and diagnostic accuracy for CT-guided percutaneous needle aspiration biopsy (NAB) procedures of pulmonary lesions performed with or without fluoroscopic guidance.

METHODS: A total of 142 patients were prospectively enrolled to receive CT-guided NAB with (Group I,n=72) or without (Group II,n=70) fluoroscopic guidance. Outcome measurements were patient and doctor radiation dose, and complication rate. Sensitivity, specificity and accuracy were calculated based on 123 NAB results.

RESULTS: The mean estimated effective patient radiation dose was 6.53 mSv in Group I and 2.72 mSv in Group II ($p< 0.001$). The mean estimated effective doctor dose was 0.054 mSv in Group I and 0.029 mSv in Group II ($p< 0.001$). The complication rate was significantly different between the two groups (13.4% versus 31.4%, $p=0.012$). Sensitivity, specificity and accuracy for diagnosing pulmonary lesions were 97.8%, 100% and 98.4% in group I and 95.3%, 100% and 89.5% in group II ($p>0.05$).

CONCLUSIONS: CT fluoroscopy-guided NAB of pulmonary lesions provides high diagnostic accuracy

and can be performed with significantly fewer complications. However, radiation exposure to both patient and doctor were significantly higher than conventional CT-guided NAB.

European Radiology, 21(2)

Nicholas J. Screaton, Fiona N. A. C. Miller, Bipen D. Patel, Ashley Groves, Angela D. Tasker, David A. Lomas and Christopher D. R. Flower,

The clinical impact of high resolution computed tomography in patients with respiratory disease

OBJECTIVE: High resolution computed tomography is widely used to investigate patients with suspected diffuse lung disease. Numerous studies have assessed the diagnostic performance of this investigation, but the diagnostic and therapeutic impacts have received little attention.

METHODS: The diagnostic and therapeutic impacts of high resolution computed tomography in routine clinical practice were evaluated prospectively. All 507 referrals for high-resolution computed tomography over 12 months in two centres were included. Requesting clinicians completed questionnaires before and after the investigation detailing clinical indications, working diagnoses, confidence level in each diagnosis, planned investigations and treatments.

RESULTS: Three hundred and fifty-four studies on 347 patients had complete data and were available for analysis. Following high-resolution computed tomography, a new leading diagnosis (the diagnosis with the highest confidence level) emerged in 204 (58%) studies; in 166 (47%) studies the new leading diagnosis was not in the original differential diagnosis. Mean confidence in the leading diagnosis increased from 6.7 to 8.5 out of 10 ($p<0.001$). The invasiveness of planned investigations increased in 23 (7%) studies and decreased in 124 (35%) studies. The treatment plan was modified after 319 (90%) studies.

CONCLUSIONS: Thoracic high-resolution computed tomography alters leading diagnosis, increases diagnostic confidence, and frequently changes investigation and management plans.