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Commentary

The selection of articles for this edition of Highlights all pertains to issues faced by general radiologists on a daily basis.

One of the commonest indications for abdominal ultrasound is the investigation of possible biliary disease. Among the commoner questions is the exclusion of acute cholecystitis. While the sonographic signs are well described and well known it is worth looking at their clinical and surgical correlates. Van Roekel et al reviewed 333 consecutive cholecystectomies that had had an ultrasound examination in the 7 days prior to the surgery and found that presence of gall bladder distension and gall bladder wall thickening best corelated with extended operating times as well as the need for surgical drains.

Over 90% of interventional radiologists report a needlestick injury in the previous 5 years. The potential of pathogen transmission increases with the prevalence of diseases that may be acquired by inoculation of body fluids. With the infectivity of Hepatitis B and C along with the prevalence of sub clinical infection makes these agents of particular concern from a Pakistani perspective. As these injuries occur despite education and universal precautions every practice needs to have contingency plans in place for when these events occur. These plans should include steps to be taken immediately after the needle stick injury which should include testing the patient for potential diseases if this has not already been done as well as intermediate and long term prophylaxis in case presence of blood borne pathogens.

One of the eternal debates in radiology reporting is whether the reporting radiologists should confine the contents of their reports to radiological findings or should they include specific management recommendations in view of the imaging findings. The management recommendations may not be confined to further imaging or follow up questions but may include referral recommendations as well. Farmer et al try and address the issue with a systemic review. Although they only found 5 trials that address the question, they conclude that making management recommendations in radiological reports improves patient outcomes.

Percutaneous lymph node biopsies for superficial lymph nodes is a challenge for bothe the performing radiologists as well as the interpreting pathologist. These notes may not always be of a size or at a location to allow a side cutting needles to be used. Traditional fine needle aspirations may not yield enough lymphoid tissue for a reliable diagnosis to be made. Frenseen needles are relatively cost effective and easy to use. In their article Yip et al find the Frenseen needles indeed yield better tissue sampling in similar sized noes as compared to routine FNACs.

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D. Van Roekel, C. A. LeBedis, J. Santos, D. Paul, M. M. Qureshi, G. Kasotakis, A. Gupta

Cholecystitis: Association between ultrasound findings and surgical outcomes

AIM: To identify sonographic signs of cholecystitis that correlate with surgical outcomes.

MATERIALS AND METHODS: Three hundred and thirty-three consecutive patients who underwent cholecystectomy between 22/06/2014 and 1/3/2016 and underwent abdominal ultrasound (US) within 7 days of surgery were included. Individual US signs,

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including gallstones, gallbladder distention, wall thickening, pericholecystic fluid, and abscess, were graded by two radiologists, 1 and 2. Outcomes included operative duration (OD), drain placement, partial cholecystectomy, conversion from laparoscopic to open cholecystectomy, surgical pathology, bile leak, infection, and 30-day readmission. US signs and outcomes were analysed using analysis of variance, chi-square test, or odds ratios (OR).

RESULTS: Radiologist 1 reported 141/333 and radiologist 2 reported 128/333 patients showed gallbladder distention. For the subset with OD, radiologist 1 reported 140/320 and radiologist 2 reported 126/320 patients showed gallbladder distention. Distention was predictive of increased OD (radiologist 1, +23.2 minutes, p<0.0001; radiologist 2, +19.4 minutes, p=0.0003). Cases with gallbladder distention were more likely to have surgical drain placement (OR= 2.60; 95% confidence interval [CI]: 1.12-6.08, p=0.027 radiologist 1; OR=2.59; 95% CI: 1.13-5.95, p=0.025 radiologist 2). Wall thickening was present in 126/333 patients reported by radiologist 1 and 120/333 by radiologist 2. Cases with wall thickening were more likely to have drain placement (OR=2.66; 95% CI: 1.16-6.13, p=0.021 radiologist 1; OR=3.49; 95% CI: 1.49-8.16, p=0.004 radiologist 2). For the subset with OD, wall thickening was present for 121/320 reported by radiologist 1 and 116/320 by radiologist 2 and predicted longer OD (radiologist 1, +15.9 minutes, p=0.0033; radiologist 2, +13.3 minutes, p=0.0143).

CONCLUSION: Gallbladder distention and wall thickening on US correlate with prolonged OD and surgical drain placement in patients with cholecystitis.

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Needlestick injuries in radiology: prevention and management

Needlestick injuries are common and often under reported in invasive radiological procedures. Prior needlestick injuries have been reported in 86-91% of interventional radiologists, and on average, one needlestick injury occurs for every 5 years of practice. Of those that have had a needlestick injury, only 58% had formal education on needlestick injury prevention. Needlestick injuries can often result in long-term debility if not properly managed. Injuries can result in transmission of blood-borne pathogens, such as hepatitis B, hepatitis C, and human immunodeficiency virus. Preventative measures, such as vaccination, proper sharps selection, handling, and disposal during radiological procedures, minimising procedure time, and team communication, can decrease the risk of needlestick injuries and pathogen transmission rate. Initial management involves proper cleaning of the wound and activating the injury reporting system. Further lab testing and post-exposure prophylaxis will depend on the serology status of the source and exposed patient. Needlestick injuries with pathogen transmission can result in long-term health issues and psychological damage, therefore, it is imperative for radiologists to understand factors that increase the risk for transmission, methods to prevent injury, and how to manage an injury when it occurs.

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C. Farmer, A. Bourne, R. Haas, J. Wallis, D. O'Connor, R. Buchbinder

Can modifications to how medical imaging findings are reported improve quality of care? A systematic review

AIM: To synthesise the available evidence about the effects of modifications to diagnostic imaging reports that aim to optimise patient care.

MATERIALS AND METHODS: Cochrane methods were used and CENTRAL, MEDLINE, EMBASE, and clinical trials registers were searched from inception to 31 March 2021. Randomised controlled trials of modifications to imaging reports aimed at optimising patient care for any condition were included. Two authors selected studies independently for inclusion, extracted data, assessed risk of bias, and judged certainty of evidence using GRADE. The primary outcome was quality of care (e.g., increased guideline-adherent care, reduced/increased imaging as appropriate).

RESULTS: Five trials met eligibility criteria. One tested provision of information about appropriate osteoporosis treatment in bone density reports; two tested provision of criteria and treatment for heart failure in echocardiogram reports; one tested provision of reminders for when routine imaging is not needed in lumbar spine and knee radiography reports; and one tested inclusion of epidemiological data in lumbar spine imaging reports. All trials were susceptible to bias, and four did not blind all participants. Low certainty evidence from two trials found adding information about appropriate care may increase care quality compared to a standard report (RR 1.20 (95% CI 0.96 to 1.50), two trials, 1,548 participants, I2 = 49). This was supported by outcomes of two additional trials that also provided specific clinical guidance.

CONCLUSIONS: The present review suggests that providing specific guidance on appropriate clinical intervention in imaging reports may improve patient care. Further high-quality trials are needed to confirm these findings. Prospective PROSPERO registration CRD42020153961.

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Ultrasound-guided lymph node sampling: Accuracy of FNAC, end-cutting (Franseen), and side-cutting (Temno) needle biopsy techniques

AIM: To compare technical success, diagnostic accuracy, and histological yield of fine-needle aspiration cytology (FNAC), side-cutting (Temno) needle biopsy, and end-cutting (Franseen) needle biopsy for ultrasound-guided sampling of groin and axillary lymph nodes.

MATERIALS AND METHODS: A total of 270 abnormal groin and axillary nodes were sampled using one of the three techniques. Nodes with a maximum length of <2.5 cm underwent FNAC or Franseen biopsy, while nodes >2.5 cm underwent Temno biopsy. Mean size of nodes sampled by FNAC (21.2 mm) and Franseen (19.7 mm) were similar while nodes sampled by Temno were larger (34.4 mm, p<0.0001).

RESULTS: Technical success rates of FNAC (82/93, 88%), Franseen (105/111, 95%), and Temno (59/66, 89%) biopsies were similar (p>0.05 for all). Lymphoid tissue yield by FNAC (mean total area 1.51 mm2) was less than that by Franseen (7.14 mm2, p=0.002) or Temno biopsy (19.44 mm2, p<0.0001). Diagnostic accuracy for malignancy was lower for FNAC (22/30, 73%) than Franseen (25/26, 96%, p=0.02) or Temno biopsy (32/32, 100%, p=0.002). For malignant nodes, determining the likely organ of origin was also lower for FNAC (7/30, 23%) than Franseen (19/26, 73%, p=0.0002) or Temno biopsy (29/32, 91%, p<0.0001), with a similar pattern observed in the identification of lymphoma.

CONCLUSION: For similarly sized nodes, Franseen biopsy provided more lymphoid material, a higher diagnostic accuracy for malignancy including lymphoma, and better identification of the likely organ of origin than FNAC. Routine use of Franseen biopsy is advocated rather than FNAC for percutaneous sampling of lymph nodes not suitable for side-cutting needle biopsy.