Gut

Leading article

Ultrasound for gastroenterologists

For some surgical and medical gastroenterologists, the prospect of their being able to utilise sonography as a direct extension of clinical examination is exciting. Like the stethoscope, some see the ultrasound transducer as a simple device, which they can use to define the cause of a patient's abdominal symptoms. The natural reaction of most radiologists to this is one of alarm, because they know that ultrasound, the most operator dependent of radiological techniques, requires training, skill, and experience for its proper performance and interpretation. Moreover, in a service with limited resources of both medical staff and capital investment in equipment, radiologists, who are as committed to quality and efficiency as any other group of clinicians, regard it as politically unwise to accept the devolvement of radiological techniques to the non-radiologist. This article examines some of the demands, pitfalls, and limitations of ultrasound performed by non-radiologists in gastroenterology and proposes a course of action that might be acceptable to radiologists and non-radiologists alike.

What are the demands?

In many radiology departments there is a waiting list for outpatient ultrasound examination, which may extend to many weeks. This is frustrating to radiologist, gastroenterologist, and patient, but is governed by the obvious factors of workload, radiologist staffing, and availability of equipment. Steadily increasing workload and a predicted shortfall in the number of trained radiologists in the near future will probably aggravate this situation. It is tempting to pursue the fashionable patient focused approach and install an ultrasound unit in the outpatient department for the surgeon or physician to use as part of his physical examination and thereby avoid the radiology department waiting list. There are, however, problems with this approach, quite apart from training, quality, and audit. Although ultrasound machines are available from about £20 000, a top of the range general purpose ultrasound machine found in most radiology departments, costs approaching £100 000 and in ultrasound, you get what you pay for. Because the patient focused outpatient department machine runs the risk of being used less than full time and because of the unpredictable nature of its workload and of the variable commitments of those using it, it is difficult to support such expenditure. It is

probable therefore, that a less expensive machine with limited ability would be installed in the outpatient unit and this would have an inevitable effect upon quality of examination and accuracy of diagnosis. There are many parallels between upper gastrointestinal endoscopy and ultrasound with regard to training, documentation of skills, maintenance of quality, audit, patient selection, patient preparation, and management of the waiting list. Most physicians and surgeons will readily appreciate the potential inefficiency entailed in providing a similar immediate outpatient upper gastrointestinal endoscopy service away from the endoscopy department. Nevertheless there will be some enthusiasts with sufficient workload to support this service and they will need guidance and training.

The development of specific techniques, including intraoperative, laparoscopic, transanal, transrectal, and endoscopic ultrasound have not been fully exploited by physicians, surgeons, or radiologists in the United Kingdom. Each technique brings benefit in diagnosis and treatment and as ultrasound machines with greater versatility are produced, these techniques should be more readily available. To avoid the diagnostic and legal pitfalls that have accompanied the uncontrolled spread of other medical technologies, training and experience in the techniques will need to be specified and recorded.

The European Union of Medical Specialties (EUMS) through the European Board of Gastroenterology (EBG) have decreed that training in ultrasound should be included to acquire the European Diploma in Gastroenterology. The diploma is necessary for gastroenterologists who wish to practice in the European Union, other than in their country of origin. The EBG is no more specific than stating that 300 ultrasound examinations should be undertaken. Because current radiological practice sets the standard of sonography, the gastroenterologist will need to provide a service of similar standard to maintain acceptable audited clinical quality. As, initially, radiologists will provide training for gastroenterologists, the training programme must be acceptable to radiologists who would have to commit time and effort to the training programme. The situation is analogous to that of endoscopy, where radiologists undertaking endoscopy would be expected to undergo no less rigorous training than their medical or surgical counterparts.

What are the problems?

Ultrasound of the abdomen is not easy. When an observer looks over the sonographer's shoulder, an impression of a simple straight forward technique is a tribute to the sonographer's skill, both technical and interpretative. Like endoscopy, it is easy to perform ultrasound badly, to overlook abnormalities, and misinterpret findings. A thorough understanding of anatomy is vital and even the surgeon familiar with abdominal anatomy, can struggle to orientate the sonographic image. Technical artefacts in the image abound and can create diagnostic confusion. A knowledge of the physics of ultrasound and of the effects of transducer type and machine settings on the final image are all necessary to avoid these pitfalls.

As in other aspects of radiology, image recording and a formal report on the examination are a necessary part of the patient's record. Stimulated by all of the problems that occurred with the uncontrolled introduction of laparoscopic surgery, Trusts and purchasers, including insurers, will demand documentary evidence of acquired skills in new technology. For the physician or surgeon, wishing to add ultrasound to his skills, documentation showing adequate training, backed up with sufficient experience, as well as continuing medical education, will all be demanded by employers and purchasers, not to mention patients. The physician or surgeon attracted by the possibility of increasing private income by undertaking ultrasound, should be aware of the current North American debate on self referral. It is probable that purchasers of health care will either limit or refuse payment for self referred ultrasound examinations.

The biggest problem of all is in the provision of training. Currently radiologists have the skills and the equipment and many are keen to train. However, ultrasound lists are busy and the waiting lists long. Training obviously has a deleterious effect on the throughput of examinations. In addition there is a large demand for training from junior radiologists and from radiographers undertaking a post-graduate diploma in ultrasound. The service and training implications of the addition of further trainees will have to be managed within any training programme for physicians and surgeons.

The way forward?

These problems show the need for defined training in

ultrasound for non-radiologists. The training guidelines must be acceptable to radiologists who will provide the training and to physicians and surgeons for whom they must be realistic and not obstructive or prohibitive. Training should fall into two parts, the first to provide knowledge of anatomy, physics, equipment, and techniques, the second to provide practical experience. To be acceptable to radiologists, the first part of training should conform to their own training laid down in the syllabus for part I FRCR. Surprisingly, the necessary theoretical training could be provided in a two to three day course, organised by a radiology department, together with a department of medical physics. The practical aspect of training could be defined in terms of numbers as by the EBG or in terms of a training period. A log book should be kept and a specified range of disorders should be defined to avoid a trainee acquiring all his practical experience from normal examinations. A supervising radiologist should be nominated. The qualifications necessary for a supervisor should be defined so that ultimately non-radiologists could act in this capacity. The level of ability acquired by this training must be recognised and related to the skills of radiologists. A trainee fulfilling the requirements of the EBG is equivalent in expertise to a second or third year radiological registrar (in pre-FRCR). Considerable continuing medicine education based further experience is necessary for the gastroenterologist to compare with the specialist consultant radiologist.

The training scheme must be funded. The theoretical first part course is easily costed. It is necessary to fund the practical part of training to fund extra ultrasound lists to cope with the slower throughput of patients on the training lists. It is currently estimated that each trainee would cost £3000 to £3500 to fulfil the EBG's requirements.

The British Society of Gastroenterology and the Royal College of Radiologists have each considered a draft document defining the principles of ultrasound training for medical and surgical gastroenterologists. It is now necessary for these and other bodies, including the other Royal Colleges, to recognise the benefits that a properly defined, audited, and funded training and continuing medical education programme can bring.

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