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EMERGENCY RADIOLOGY SPECIAL FEATURE: COMMENTARY

Emergency radiology in the United States—a stepchild finding its way

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ABSTRACT

Emergency radiology as an academic discipline and practice activity is clearly recognized as a distinct category within the community of radiologists in the USA. But, its place among the other branches of diagnostic imaging is as an outlier. Emergency radiology is not recognized as a separate course of study in the curriculum of training. It is not a component of the qualifying exam of the American Board of Radiology. It has few fellowships. It has not engendered a specific designation of care personnel for trauma centres. Moreover, its situation with respect to emergency physicians is bound, by neither regulation nor tradition, to be intellectually or physically close. Yet, it is recognized as encompassing an established society of teachers, practitioners and investigators. Its journal is a repository of new knowledge. Thus, it occupies a definitive if still anomalous position in American medicine in general and radiology in particular.

Emergency radiology, or more specifically the training for it and the practice of it, occupies a unique position in the organization of diagnostic imaging in the USA. Although its focus, by definition, relates to a site-oriented connection to patients, its linkages to the referring physicians who serve the acutely ill and injured have not been strong, lacking both tradition and a concerted effort for proximity. In contrast, the professional relationship of gastroenterologist and gastrointestinal radiologists tends to be close often with frequent interactions, both formal and *ad hoc*. Similarly, orthopaedists and musculoskeletal radiologists have generally established the value of joint meetings on a regular basis, and frequent colloquy is a hallmark or it should be among neurologist, neurosurgeons and neuro-radiologists. Likewise, a kinship of concern fosters an expected collaboration of paediatricians and paediatric radiologists. And a sense of teamwork characterizes the relationship of surgeons and interventional radiologists.

But emergency radiology, in many instances, stands apart from a sense of concordance of purpose amid dualities of function and expertise. For one thing, the emergency radiologist can and often plies his craft at a distance from the emergency suite or trauma bay. There is no requirement that he or she must be located near these patient areas. Nor is there a necessity that the emergency radiologist and referring physician consult in person. Communication by phone or by the picture archiving and communication systems is acceptable for care so that the radiologist can be

physically distant within the hospital or clinic or even far away communicating by some means of teleradiology and teleconferencing. Also, the nature of the emergency clinical experience works against a sensibility of teamwork inasmuch as the occasions of contact are prompt and short-lived as each goes on with dispatch to the evaluation of the next acute issue in the next distressed patient. Hence, professional transactions between emergency physicians and emergency radiologist tend to be circumscribed in time and content, more like the posting of bulletins rather than the exchange of stories.

The training of emergency radiologists is distinctive when compared with that of their fellow diagnosticians in any specialty. In the USA, residency education is structured along subspecialty lines. The curriculum must conform to a schedule of requisite time spent learning each discipline separately. The subspecialty-directed format as prescribed by the National Residency Surveillance Organization [Accreditation Council for Graduate Medical Education (ACGME)] is in concert with the organization of the qualifying examination of the American Board of Radiology, in which scores are recorded for each of the 10 separately delineated subjects.

The training requirements for radiology specialization in the USA differ from those in many European countries. Nuclear medicine is part of the curriculum and so is neuroradiology. But, there is no time designated specifically

for emergency radiology. In fact, exposure to it is achieved in part of in whole in many training programmes by assignment to it after hours, on weekends and holidays with supervision and graded responsibility as the training term advances.

A radiology residency consists of a span of 4 years commenced after completing a 1-year clinical internship. Nowadays, and actually for the past 15 years or so, nearly every newly minted radiologist does not go into practice immediately, but rather pursues a 1-year fellowship organized like residency along subspecialty lines. For many fellowships, the curriculum is also closely prescribed by ACGME requirements. Of the approximately 1000 graduates of radiology programmes annually, about 250 graduates choose an interventional radiology fellowship in which the fellow must do interventional radiology as his or her only daily work. Similarly, neuroradiology fellowships are nearly as popular and similarly constrained within a curriculum focus. For body CT and musculoskeletal radiology, there is more flexibility in programme content and focus. Together, these programmes are chosen by another 200–300 graduating trainees. Paediatric radiology is less popular but also bound to ACGME specifics. Breast radiology, now becoming more desirable, is outside ACGME oversight, but selection to it is made slightly after the mid-point of the 4-year residency. Increasingly, breast radiology will be the fellows expected major career assignment.

Where does this leave emergency radiology? Again, the odd man out! There are only very few fellowships devoted to it. And thus, enthusiasts for it wander to emergency radiology rather than are directed to it. Mentors do not abound. Some very eager and confident teachers and leaders are there for guidance, but there are relatively few.

It is apparent that there are canons, *i.e.* bodies of knowledge that are readily accepted and available for the other subspecialties of radiology. And there are controversies too that engage the junior practitioners and seasoned veterans alike. What forums are available to disseminate both the wisdom and critiques and herald new developments? Radiology subspecialties have addressed this agenda through the formation of societies to advance and protect their “brand”, so to speak. The mission of these societies is to provide a locus in which discussions can take place among practitioners with shared interests, tactics can be charted and political, regulatory, technological and academic information can be shared. Beginning in the 1960s, each American radiology subspecialty has so organized itself. The Society of Uroradiology was established in 1966 and the Society of Gastrointestinal Radiology was established in 1971. Now, since 2010, they have combined to form the Society of Abdominal Radiology. The Society of Skeletal Radiology was inaugurated in 1978 and the Society of Breast Imaging commenced activities in 1985. Emergency radiology was a late-comer to this form of organization. A group of eight academic radiologists with kindred interests in emergency imaging met in Boston in 1987 to formalize the creation of the American Society of Emergency Radiology (ASER). The path taken from there has been similar to the development pattern of the other subspecialty societies. A year later, their first annual meeting took place, which has served as the model for successive year

conclaves held at various sites in the USA. Each of these has a dual function—to serve as a source of dissemination and discussion of scientific developments as a postgraduate education course. In 1995, replicating the initiative developed by its sister societies, the ASER launched its journal, *Emergency Radiology*, now in its 22nd year. The journal has grown slowly but assuredly, concentrating its editorial emphasis on clinically relevant reports, studies and review articles on varied concerns of ER radiology diagnosis.

The formation of ASER with its organizational impress and the publication of scholarly contributions in its journal have served to legitimate emergency radiology as a distinct specialty having a pertinent and unique corpus of knowledge. Despite the limitation imposed by its exclusion from the categorization of radiology instruction and certification, the clinical relevance of imaging issues germane to the care of the acutely ill and injured have sustained interest in it. And the ASER has been open to organizations of similar focus in Europe and Asia. The annual meeting should be rightly considered a prime site for international exchange.

But, the typical placement of emergency radiology, its confinement to an often sequestered location and its limitations in number of dedicated practitioners has engendered a spectrum of concerns not readily soluble but still in need at least of general recognition if emergency radiology is to thrive.

One matter retarding the expansion of emergency radiology or at least limiting regard for it is its relation to trauma surgery. The American College of Surgeons through its authoritative publication “Resources for Optimal Care of the Injured Patient” set out criteria for trauma centres of the USA; such can be of three levels, the most comprehensive labelled a Trauma I Center. In chapter 11 of its document, “Collaborative Clinical Services” radiology facilities and personal requirements are specified. “Conventional Radiology must be available 24 h a day. CT must be available 24 h a day. An in-house radiology technologist and CT technologist are required. Qualified radiologists must be available within 30 min in person or by technologist for the interpretation of radiography. And qualified radiologists must be available within 30 min to perform complex imaging studies or interventional procedures”.¹

It is clear there is a need for interventionalists to be on alert in these centres. But, for all other imaging assessments, the term is a “qualified radiologist”. Not an emergency radiologist. It should be the responsibility of the cadre of emergency radiologists to define this term in general and with specific enumerations. To realize their enhanced capability, emergency radiologists should seek to educate other radiologists to gain skills in ER imaging and at the same time to attract junior radiologists to pursue a career focused on ER radiology studies.

But, a second issue needs to be brought to the fore. Busy hospital-based emergency suites have rightfully demanded that radiology interpretation is a 24 hour 7-day-a-week obligation in order to provide adequate patient care. That means the imaging expert must be on site or reachable by teleradiology around the

clock. Both arrangements serve to separate the ER radiologist from his or her colleagues. It is obvious that anomie is a consequence of teleradiology when rendered by representatives of an outside organization located miles or thousands of miles away.

However, these new demands have changed the terms of scheduling for dedicated ER radiologist within a department. In many places, the assignment is 7 days on duty covering daytime

and night time and then 14 days off. Such a time allotment may be efficacious for the delivery of service, but it will be a further challenge to the maintenance of the ER radiologist to remain a team member in a department of radiology, as it provides another opportunity to place him or her remote from his colleagues. In a sense, this is another manifestation of ER radiology's separateness in the rendering of care within the American paradigm of radiology–referrer interaction.

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