INTRA-ABDOMINAL ABSCESS — A Challenge for Abdominal Surgeons

Intra-abdominal sepsis, whether de novo or following abdominal surgery is associated with a high mortality rate. With the advent of surgical drainage in the beginning of the 20th century, mortality rate for this condition dropped from above 90% to around 50%; advances in critical care and supportive techniques in the last two decades have brought it down further to around 20%. These figures, however, are still high and every effort must be made to improve these.

This issue of the Journal carries two articles on diagnosis, management and outcome of intra-abdominal sepsis. Both these articles have highlighted the challenge that intra-abdominal sepsis poses to Indian surgeons in settings quite different from those in western hospitals. The diagnostic dilemma described by Pai et al reflects indeed the frustration that surgeons face in management of these cases. The role of a high index of clinical suspicion needs reemphasis. In a clinical setting of persistent fever and increasing leukocytosis with no abdominal signs or any other obvious cause for fever, intra-abdominal sepsis can be diagnosed only if the clinician suspects this diagnosis and undertakes appropriate investigations. Amongst the imaging modalities, ultrasonography (US) and computed tomography (CT) have the advantage that these not only help in diagnosis but also offer a therapeutic possibility. The authors, however, did not evaluate any imaging techniques (i.e., CT or isotope scans) other than US, which detected the lesion in 70% of their cases. Even though US and CT have been shown to be 84% and 90% accurate respectively for diagnosis and localization of intra-abdominal abscesses, another study comparing US, CT and gallium scans revealed that CT was the best in localizing these lesions with the role exception of pelvic abscesses. Also, in the postoperative period, CT assessment is better rather than US examination, because of presence of wounds, dressings and drains.

Although these authors have discussed the role of US-guided percutaneous drainage (PCD), surgery remains the gold standard for management of intra-abdominal infection. The objectives of surgical drainage are elimination or reduction of contamination and prevention of recurrent infection. Success of PCD depends on the anatomical location of the abscess, their number, nature (unilocular or multiloculated) of abscess and the nature of its contents. A unilocular cavity containing thin fluid or pus with no debris and not having any enteric communication is the ideal abscess to drain percutaneously. By applying these selection criteria, only 70% of intra-abdominal abscesses are suitable for PCD but success rate in these cases approaches 90% and the procedure has low morbidity. Other authors have been more enthusiastic and have estimated that 90% of all patients are suitable for PCD, in one such study, the success rate was 82% for simple abscesses and 45% for complex abscesses with an overall success rate of 73% but with an increase in complication rates (9.7%). The success also depends on the technical expertise i.e. proper placement of the catheter, ensuring the patency of the catheter and retaining the catheter till obliteration of the cavity is documented.

Pai's study suffers from the disadvantage that it is retrospective and conducted on a small number of patients. In this study PCD was successful in 6 of 9 patients with simple abscesses and one of 5 patients with complex abscesses treated primarily. Five of 15 patients with simple abscesses required more than one treatment modality. The low success rate of PCD in simple abscesses in this study may well be due to the fact that the authors did not use CT, which helps in determining if the abscess has thick pus and hence unlikely to respond to PCD. Haaga and co-workers have suggested that the presence of air bubbles or of septations on CT indicate that the abscess is likely to be less amenable to PCD.

PCD can also be used as an adjunct to surgery to stabilize critically ill patients or convert two stage surgical procedures to a single stage. On the contrary, critically ill patients (APACHE II score 15) after stratification appeared to fare better, though not statistically significant, with surgery than with PCD. Surgery in these critically ill patients achieves better drainage in comparison to PCD.

PCD should therefore be limited to unilocular abscesses with thin fluid and debris without enteric communication, which can be identified by CT scan. In complex abscesses, though PCD has been successful in some
series, it is believed that surgical intervention is a better alternative. Surgery should not be avoided simply because a patient is critically ill because it may cause improvement in the general condition of the patient rapidly.

Severity scoring of intra-abdominal sepsis aids in stratification of patients when different modalities of treatment have to be evaluated. It is also useful in understanding the nature of the disease and for prognosis. An ideal scoring method should be simple, accurate and reproducible in the hands of different investigators. Though there are several methods for severity scoring, none is optimal for intra-abdominal infection. Initial attempts at scoring led to ‘sepsis’ scores, which relied mainly on disease specific pathology rather than physiology. This was soon replaced by APACHE (Acute Physiology and Chronic Health Evaluation) which initially included more than 30 physiologic variables and was later reduced to 12 in the APACHE II scoring system. Sampath Kumar et al have used APACHE II system and found it to be a good method for assessment of severity of sepsis, even though it is not specific for intra-abdominal sepsis. Several other studies have also validated the usefulness of APACHE II scoring system in intra-abdominal sepsis. APACHE II scoring system however suffers from lack of inclusion of other variables which are known to influence the outcome i.e. extent of disease, timing of assessment of score, etc. In spite of these shortcomings, lack of any other objective and better scoring system has made APACHE II an acceptable method for prognosis of patients with intra-abdominal sepsis and also for stratification of these patients for evaluating the role of various treatment modalities. The authors in the present study also found that early surgery reduced the mortality, but however it is not known whether the severity of illness is comparable between patients undergoing early surgery and those undergoing delayed surgery. They however, did not study if the APACHE II score could help in deciding the best treatment modality for a given patient.

Addition of other factors which clearly influence the prognosis is the treatment modality used and the pathology at operation to the APACHE II scoring system needs critical evaluation on prospective basis. Studies on this aspect are underway at many centers including ours and their results may provide more information in this regard in the near future.

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References