EDITORIAL

Acute (non-ruptured) Abdominal Aortic Aneurysms

R. B. Galland and T. R. Magee

Department of Vascular Surgery, Royal Berkshire Hospital, London Road, Reading, U.K.

Abdominal aortic aneurysms (AAA) can present electively or acutely. The type of presentation influences operative mortality. That following elective repair is approximately 5%. However, this group of patients can be subdivided into those presenting with and those without symptoms, the former tending to have greater risk of death following repair. AAA presenting acutely may or may not be ruptured. Overall mortality following rupture is approximately 90% if patients dying in the community before reaching hospital are included. Of those patients being operated upon, the mortality is approximately 50%. This group can be further subdivided into those presenting with or without shock, the former patients having greater mortality. Patients presenting with acute, but non-ruptured, AAs represent a heterogeneous population in terms of both description and composition. Descriptions include “impending rupture”, “acute, no rupture”, “symptomatic, no rupture”, “emergency operation, no rupture found”, “urgent”, “emergent”, “tender” or simply “acute admission”. They will include those patients with a tender or painful aneurysm but which is thought not to be ruptured, and those patients thought to have a ruptured aneurysm which is not confirmed at emergency operation. In this latter group will be patients with AAA but whose pain is due to either associated intra-abdominal or extra-abdominal pathology, e.g. myocardial infarction.

The proportion of acute AAA will vary from one series to another depending upon the definition used. Repair of acute (non-ruptured) AAA has a mortality greater than that following normal elective AAA repair. Typical results show a mortality from 4-19% with a median of 11%, the ratio of acute (non-ruptured) to elective mortality being approximately 3:1. Why should this be? A recent report from the Mayo Clinic described a series of 36 patients with symptomatic non-ruptured AAs. Of the 14 patients operated on within 4h of admission, four died (28.6%). Eleven patients were operated on between 4 and 24 h, and 11 between 24 h and 7 days. None of these 22 patients died. General surgical emergency procedures have been shown to be associated with higher mortality than those carried out electively. Specific factors which could be relevant in the context of AAA mortality may include preoperative investigation. Clearly, any patient thought to have a ruptured AAA will be quickly transferred to theatre. Thus any preoperative investigation and risk factor correction normally carried out before elective reconstruction will be absent. Similarly, operations performed “out of hours” may not be carried out with the usual surgical, anaesthetic and nursing vascular teams. Computerised tomography (CT) has been used to differentiate those acute AAs which have ruptured from those which have not. In the presence of the triad of pain, pulsatile mass and hypotension there is little to be gained from investigation of the aneurysm. However, if there is any doubt, particularly with a history suggestive of rupture but in a haemodynamically stable patient, CT may be useful. Of importance would be those AAs which are ruptured but which are incorrectly diagnosed on CT as being intact. Sensitivity of CT in this context is approximately 80%. Of less importance is specificity. If CT suggests rupture which is not confirmed at laparotomy then little is lost, as the patient would presumably have had an emergency operation had CT been unavailable.

Another question which needs to be addressed is the prevalence of inflammatory aneurysms within this...
group of patients. Patients with inflammatory AAAs are more likely to be symptomatic (loss of weight, abdominal or back pain) compared with patients having normal atherosclerotic aneurysms. A three-fold increase in elective operative mortality has been shown for inflammatory AAAs. This difference is mainly due to technical problems encountered at operation.

Thus it can be seen that a steady increase in mortality can be identified from elective asymptomatic, elective symptomatic through acute to ruptured. Failure to define precisely the mode of presentation allows potential manipulation of mortality data. For example, "emergency" mortality, which includes both acute and ruptured AAAs, will produce a lower figure than can be expected for ruptured cases alone. Furthermore, international coding systems fail to identify an acute (non-ruptured) category for AAA. ICD10 simply defines AAA as "ruptured" (171.3) or "without mention of rupture" (171.4). Similarly operative categories are emergency (OPCS L18.4–6) or non-emergency (L21.4–6, L25.4). Hospital or regional statistics will clearly be distorted. This may explain, in part, the wide variation in AAA mortality which has been reported between one hospital and another.

Vascular surgeons need to define accurately patients presenting with acute AAAs. Once this has been achieved it should be possible to code aneurysms more efficiently than at present. This is turn should go some way towards addressing the apparent variation in results between one centre and another.

References


Accepted 1 April 1997