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Prognosis of abdominal aortic aneurysm

Operate on tender aneurysms, but get better data on small asymptomatic aneurysms

Abdominal aortic aneurysm is common, and studies in Britain, North America, and Australia show a rising prevalence.¹⁻³ In Britain rupture or complications of abdominal aortic aneurysms kill 10 000 people each year⁴; a further 2000-3000 undergo successful aortic grafting, but many more die with their aneurysms intact. Necropsy studies suggest that aneurysms are present in 3% of those aged over 50.⁵ Abdominal aortic aneurysm is therefore potentially lethal but not always the killer. Recent screening studies suggest that asymptomatic small aneurysms are frequent among people aged 65-74.⁶⁻⁸ The prognosis—and hence the ideal management—of these asymptomatic aneurysms, however, is not clear.

Elective replacement of an aortic aneurysm with a Dacron graft is a safe, standard, and durable procedure; Dacron is inert and outlives the patient provided that no infection occurs at bypass. A review of our data on 325 consecutive aneurysm repairs done over a decade, looking at 30 day as well as 24 hour mortality, showed a considerable difference in mortality according to whether the aneurysm was symptomatic. For 134 patients with asymptomatic aneurysms the 24 hour mortality was zero and 30 day mortality 1.4%; for 120 patients with an inflammatory aneurysm or a tender aneurysm suggesting impending rupture the 24 hour mortality remained low (0.8%) but 30 day mortality rose to 9.2%; for 71 patients with ruptured aneurysms the 24 hour mortality was 19.7% and 30 day mortality 42.2%. Others have reported similar experiences.⁹⁻¹¹

Thus for patients with asymptomatic aneurysms mortality during the first 30 days after surgery is little more than that expected over long term follow up—that is, 9% a year. But despite the increase in elective repairs the number of patients admitted with ruptured aneurysms continues to rise.¹ The contrasting mortality figures for ruptured and unruptured aneurysms suggest that tender aneurysms should be operated on urgently, before they rupture. The difficulty remains with asymptomatic aneurysms.

The risk of rupture of an asymptomatic aneurysm probably increases with the maximum diameter,¹² but age and general health are also important. Aneurysms are a disorder of the seventh and eighth decades, and death from other causes may precede rupture. Most British surgeons favour surgery for

asymptomatic aneurysms over 5.5 cm in diameter, but the management of smaller aneurysms is controversial. All favour observation of aortic swellings of up to 4 cm, and some operate on aneurysms of that size,¹³ even though the size of a small aorta is uncertain (unpublished data). Nevertheless, preliminary data indicate that asymptomatic aneurysms of less than 5 cm do not benefit from elective repair.¹⁵ A recent retrospective review of 176 patients with abdominal aortic aneurysm in Rochester, Minnesota, showed that aneurysms of 5 cm or less were unlikely to rupture.¹⁶

Information on factors associated with aortic dilatation comes only from retrospective studies of patients unfit for elective surgery.¹⁷⁻¹⁹ These factors include the absence of peripheral arterial disease; a small ratio of suprarenal aortic diameter to infrarenal diameter; hypertension; and obstructive lung disease. The rate of growth of small aneurysms seems to vary widely, from 2 mm to 8 mm a year.¹⁷⁻²⁰ One retrospective analysis suggested that β blockers diminished the rate of growth from about 5 mm a year to less than 2 mm.²¹ Such studies simply compound the dilemma of whether to operate on small asymptomatic aneurysms and add nothing to knowledge or understanding of the natural course.

Clearly, once an aneurysm of any size has become tender it is lethal and should be operated on. Although operative mortality is low for asymptomatic aneurysms, we have inadequate prospective data on the growth of small aneurysms, their rates of rupture, and mortality from rupture or other causes during observation, and we know next to nothing about the factors affecting dilatation. We need national 30 day mortality figures for elective repairs according to age, sex, and size of aneurysm, not just reports from specialist centres. A national collaborative trial of the management of patients with asymptomatic abdominal aortic aneurysms could provide this information. Only then could we comment on the prognosis of small asymptomatic aneurysms and whether observation or operation is better.

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