A drill technique to suture to the calcified abdominal aorta

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BACKGROUND

Aortic wall calcification remains a contraindication to endovascular treatment of aortic aneurysms. Aortic suture placement during open surgery in such cases can be challenging. We describe a technique used successfully in circumferential aortic calcification that allows sutures to pass through the aortic wall with minimal trauma.

TECHNIQUE

Following control of the infrarenal aorta by clamping, a micro drill (Stryker, Kalamazoo, MI, US) is used to produce a series of holes from the inside and outside of the aorta around the sites of the anastomosis to a dacron prosthesis. These holes are spaced 3–4mm apart to avoid disrupting the calcium plaque and weakening the arterial wall. Sutures are passed through each drill hole and reinforced with polytetrafluoroethylene patches to reduce anastomotic bleeding. The technique is illustrated in Figure 1. The hole size can be minimised by using the smallest burr available (eg Stryker's 0.5mm cross-cut fissure carbide apicoectomy burr).

DISCUSSION

Previous authors have described the use of a drill only on the posterior aortic wall, with the drill passed only through calcified plaque and not the intima.^{1,2} We have successfully used full aortic wall penetration, permitting placement of sutures through the anterior wall of the infrarenal aorta. As described previously, felt patching must

1 = infrarenal aorta; 2 = burr holes made by drill; 3 = sutures placed and reinforced with felt patches; 4 = aortic graft

Figure 1 Drill technique to suture to a calcified abdominal aorta

be used to overcome the diameter discrepancy between suture and burr hole.

Endovascular intervention in an aging population presenting with difficult aortic aneurysm anatomy poses many challenges to the vascular surgeon. This simple technique can be modified to aid inlay grafting in the presence of heavy calcification in the infrarenal aorta when multiple burr sizes and angled drills are available.

References

1. Friedman SG. Use of the Hall drill for suturing severely calcified aortas. *J Vasc Surg* 1988; **8**: 198–199.
2. Hutson DG, Ginzburg E, Tabbara M *et al*. Suturing the calcified aorta. *J Vasc Surg* 1994; **19**: 1,098–1,099.