

nipulation or catheter movements through the aortic arch (18). Detecting the presence of aortic debris and characterising its severity, particularly in patients older than 60 years, makes it possible to draw a more accurate profile of individual risk of embolic events. Aortic plaques are most often seen in elderly patients with hypertension, hypercholesterolaemia and a history of smoking (19). Screening for atherosclerotic lesions of the aorta in the cardiac surgical population may become even more important than in the general elderly population because most cardiac surgical patients are at greater risk of clinically significant aortic atherosclerosis (20). It has been reported, for example, that in patients undergoing surgery for aortic stenosis, the stroke rate triples (reaching 16%) in those showing complex arch atheroma (i.e., a thicker plaque with protrusion of mobile debris or ulceration or both) (20,21). Thorough knowledge of aortic anatomy thus can help us to choose the most appropriate management strategy, such as axillary cannulation, less traumatic cannula tips, balloon occlusion, soft cross clamps, circulatory arrest with aorta grafting, variations of "no touch" techniques and the recently introduced transapical valve replacement with off-pump grafting (20). Transoesophageal echocardiography has been reported to allow accurate assessment of the degree of atherosclerosis in the thoracic aorta (10). The presence of complex arch atheromas on TEE appears to be associated with an increased risk of perioperative stroke (20). However the mid and distal segments of the ascending aorta are often obscured by interposition of the tracheal tree. Unfortunately this "blind spot" on the aorta is the portion most often manipulated during surgery. Intraoperative epi-aortic ultrasound has been shown to be more sensitive than either palpation or TEE for detecting aortic plaques (22), but it is not routinely used because most surgical teams consider the traditional method of palpation equally reliable (23). Despite technical limitations and caveats aortic atheroma and stroke risk can be reasonably screened for preoperatively with the standard TEE and the routine use of ultrasound guidance in cardiac surgery may improve postoperative outcomes in this patient population. According to the guidelines of the American Echocardiography Society (24), the indication of TEE for evaluating the cardiovascular source of an embolic event in a patient who has a normal TTE and normal ECG and/or a history of atrial fibrillation/flutter is uncertain.

Different investigators have found a positive and significant correlation between atherosclerotic plaque dimension and embolic activity measured by transcranial Doppler monitoring (18,25,26). While all studies in subjects undergoing coronary angiographies (18,25,27) failed to demonstrate any correlation between emboli counts and clinical events, a positive and significant correlation has been found between transcranial microembolic signals and the risk of cerebral ischaemic complications among patients undergoing cardiac surgery (28). Therefore, in these subjects, an integrated evaluation (i.e., TEE plus TCD monitoring) may provide a more useful and accurate predictive index of embolic risk.

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