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IMAGES IN CARDIOLOGY

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Histological confirmation of complete endothelialisation of a surgically removed Amplatzer ASD occluder

We present histological images of a surgically removed Amplatzer ASD occluder. The device had to be removed because of malpositioning one year after implantation in a 44-year-old woman with ostium secundum atrial septal defect. The excised tissue specimen was fixed in formalin and embedded in the hard resin methylmethacrylate (Technovit 7200, Kulzer & Co, Wehrheim, Germany). Histological slices were obtained by sectioning the resin block using a diamond cutter and subsequent grinding.

On gross examination, metal struts of the device partly appeared uncovered (panel A), but no superficial deposition of thrombus material was detected.

In contrast to the macroscopic appearance, a thin but complete endothelial layer on the surface of the implant could be demonstrated histologically (panel B). In the inner part of the device, the metal struts and the Dacron fabric were almost completely surrounded by fibromuscular cells

and connective tissue. Some islets of thrombotic material (not yet cellularised) were found in the central portion of the specimen. There was only a mild inflammatory reaction with few lymphocytes and foreign body giant cells locally related to the polyester fibres within the implant.

Since endothelialisation of cardiovascular implants is of major clinical relevance, we can demonstrate a complete but partially very thin endothelial coverage of the foreign material of an Amplatzer ASD occluder after an implantation period of one year.

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We declare not to have any competing interests in accordance with the BMJ declaration.

Macroscopic view of the Amplatzer ASD occluder after surgical removal, with some atrial septum tissue adjacent to the outer rim of the device.

Ground section of the explanted Amplatzer ASD occluder. Richardson blue staining (cellular and connective tissues stained blue). MS, metal struts (nitinol); PF, polyester fibres; ST, screw thread, through which the device is connected to the delivery cable before release.