Internal jugular vein aneurysms (IJVA) are uncommon and most patients remain asymptomatic. If symptoms occur, the most common is a tender, non-pulsatile, subcutaneous mass that extends along the line of the internal jugular vein. Typically, JVs become apparent while coughing or during a Valsalva manoeuvre. In general, compression of adjacent structures and complete or partial thrombosis of the aneurysm are considered indications for surgery. Although the risk of pulmonary embolism of IJVA thrombus is not well defined in the literature, it represents the most dangerous complication and may theoretically be increased during surgical resection of the aneurysm.

Report

A 76-year-old woman presented with a 7-year history of a swelling on the left side of the neck. She complained of increasing pain and progressive enlargement of the lump. There was no history of previous neck surgery or local trauma, nor of glandular inflammation. Also, there was no clinical evidence of right heart failure. The physical examination showed a pear-shaped, non-pulsatile and compressible mass on the left side of the neck which increased in size during Valsalva manoeuvres. The colour duplex ultrasound confirmed a large and partially thrombosed aneurysm of the left jugular vein measuring 115 mm in length and 44 mm in diameter (Fig. 1). The contralateral internal jugular vein was normal and patent. The risk of pulmonary embolism was estimated to be considerable due to the size of the aneurysm. Therefore, a hybrid intervention was performed: first, the venogram confirmed a patent left subclavian and brachiocephalic vein without thrombus apposition. A 14 × 60 mm bare stent was deployed from the left subclavian to the brachiocephalic vein to cover the junction of the left internal jugular vein and act as a protective filter. Then, the neck was extended towards the right side in Trendelenburg position and a standard incision along the ventral border of the sternocleidomastoid muscle was chosen to expose the venous aneurysm. The thrombus was removed through a venous incision before the common carotid artery and the vagus nerve could be identified. The proximal and distal ends of the venous aneurysm were ligated followed by complete removal of the aneurysm.

The patient had no postoperative complications and was discharged 8 days after the operation. Oral anticoagulation was installed using warfarin. At 28 months the stent was still in the original position and patent (Fig. 2). No swelling or local symptoms persisted and venous drainage was compensated by the contralateral jugular vein.

Keywords:
Internal jugular vein aneurysm
Bare stent
Resection

Introduction: Internal jugular vein aneurysms are very uncommon. Indications for surgery include the compression of adjacent structures and the risk of pulmonary embolism associated with thrombus within the aneurysm.

Report: A 78-year-old woman was hospitalised with a large internal jugular vein aneurysm filled with thrombus. A bare metal stent was deployed from the left subclavian vein to the left brachiocephalic vein and served as a protection device during the open surgical resection of the aneurysm. At 28-month follow-up no serious complications had occurred.

Discussion: This case report introduces a novel method to prevent pulmonary embolism during treatment of large partially thrombosed jugular vein aneurysms.

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Discussion

The aetiology of venous aneurysms is still unclear. Histopathologic findings suggest a localised degenerative process resulting in thinning out of elastic and muscular layers.2

Because of its low incidence, guidelines for treatment of IJVAs are not well established. Symptoms such as pain, enlargement or compression of adjacent structures and complications such as rupture or thromboembolism are accepted indications for surgery. Moreover, cosmetic concerns may be a relative indication for surgical resection. However, if venous aneurysms remain asymptomatic, a conservative treatment is generally recommended.2

Undoubtedly, an end-to-end anastomosis or reconstruction of the jugular vein using an interposition graft would have been the preferred solution in our case; however, the aneurysm was too large for a direct end-to-end re-anastomosis and a reconstruction would have required a sternotomy and, potentially, clavicle excision to enable the anastomosis to a conduit. It was suggested before that, if the contralateral internal jugular vein was normal and patent, a jugular venous aneurysm could be treated safely by ligation and without reconstruction.3,4

The inherent risk of a thromboembolic event during surgical repair of a venous aneurysm is unpredictable and potentially lethal. Although there are no reports of pulmonary embolism from IJVAs in the current literature, thrombi can theoretically be detached during surgical manipulation and could lead to a disastrous outcome, particularly if the thrombus load is as large as in the present case. In popliteal vein aneurysms, presence of thrombus was shown to correlate with the risk of pulmonary embolism in a case series published in 2000.5 Thus, the implantation of an inferior vena cava filter was considered to be indicated before resection of such aneurysms.3 For the treatment of IJVA, however, there are no similar recommendations, presumably due to its low incidence. A filter in the superior vena cava might be an effective method of preventing fatal pulmonary embolism in such cases. However, their insertion is more demanding than that of inferior vena cava filters, because the superior vena cava is shorter and closer to the pulsating heart, which increases the risk of filter dislodgement. In contrast, the deployment of a bare metal stent into the brachiocephalic vein is straightforward. Therefore, a bare metal stent was placed across the internal jugular vein junction in the present case and acted as a protection device preventing the passage of any thrombus from the aneurysm into the central venous system. Under oral anticoagulation, brachial venous drainage stayed patent for at least two and a half years.

To our knowledge, this is the first description of a hybrid procedure involving an IJVA, in which a bare metal stent was positioned first over the junction of the internal jugular vein to prevent pulmonary embolism during the subsequent open resection of the partially thrombosed venous aneurysm.

Competing Interest

None.

References