Proposal for bail-out procedures - Vascular thoracic

Surgical management for Stanford type A aortic dissection: direct cannulation of real lumen at the level of the Botallo’s ligament by Seldinger technique

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Abstract

A 50-year-old man was diagnosed with Stanford type A acute aortic dissection with cerebral malperfusion and unconsciousness. This clinical presentation was investigated by computed tomography which revealed a severe type A dissection involving all limb arteries. Successful operative treatment based on the direct arterial cannulation of the real lumen of dissected aorta at the level of Botallo’s ligament by Seldinger technique achieves an appropriate perfusion and rapid cooling of the instable patient. To our knowledge this is the first reported case in the literature.

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1. Introduction

Acute Stanford type A dissection, with or without involvement of the aortic arch, represents an emergency situation that requires immediate surgical intervention. Surgical therapy consists mainly in replacing the ascending aorta, and as extended procedure also removing the arch up to the proximal descending region as well, regardless of the extent of the pathological process. Acute aortic insufficiency, when present, is generally treated by valve resuspension cy, when present, is generally treated by valve resuspension.

Mortality rates from these operations have dramatically improved as the result of recent advances in preoperative recognition, intraoperative techniques, and postoperative care [1]. Nevertheless, operations for acute type A dissections is still associated with high mortality rates [2]. Cannulation of an extended lesion presents often an enormous challenge either through subclavian or lower limb arteries [3–5]. We prefer an innovative cannulation method through the dissection membrane at the level of Botallo’s ligament by Seldinger manner.

2. Case

A 50-year-old man complained of sudden chest pain, was admitted unconscious with anisochoria to our hospital. A computed tomography scan showed a Stanford type A aortic dissection. The dissection began directly over the aortic valve; the maximal aortic diameter of $6.0 \times 5.5$ cm was detected on the ascending part. A connection of real lumen
Under systemic circulatory arrest, a complete reconstruction of the aorta up to proximal descending section was performed by a 30-mm vascular prosthesis (Hemashield Platinum Woven Double Velour Vascular Graft®, Boston Scientific Inc, Wayne, USA) including the island type reinsertion of all supraaortic vessels. The false lumen was eradicated with 45% bovine serum albumin-10% glutaraldehyde glue (BioGlue®, CryoLife International Inc, Kennesaw, USA); aortic valve commissures were refixed with the resuspension suture technique. Systemic reperfusion and rewarming were started through a graft side-branch. ECC time measured 156 min, circulatory arrest 63 min, antegrade selective cerebral perfusion time 50 min.

Pathological study of the aortic wall showed a degenerative atherosclerosis in combination with adventitial hemorrhage. A computed tomographic scan undertaken 12 days after the operation showed consolidation of the complete vascular situation and proper perfusion of both supraaortic and visceral branches. The postoperative course was uneventful except for a reversible left upper limb palsy. The patient was discharged after 22 days, and event free at six-month outpatient visit with consolidated vascular status.

3. Discussion

A Stanford type A dissection should always be treated surgically consisting of at least an ascending aortic grafting, although ascending aorta and total aortic arch grafting is appropriate for some of the complicated cases. The cannulation is a crucial point in dissection patients, if medial tear involves all great limb arteries. Establishing an access point at the level of the Botallo’s ligament by Seldinger technique could provide a useful alternative to achieve a quick arterial entry. At this portion of aorta the pulmonary trunk is firmly bound by a massive connective tissue, which usually prevents complete dissection in this area. Through the rapid and atraumatic cannulation method ECC is introduced, thereby reducing the likelihood of peroperative shock leading to an increased mortality [6]. With increasing experience in arch reconstructions and improvement in outcome, the indications of minimal invasive direct cannulation could be expanded to include all type A aortic dissections with or without limb artery involvement. Concomitant replacement of aortic arch in ascending aorta surgery recently has been recommended for event-free long-term survival [7, 8]. It is mandatory to protect the central nervous system; a successful cerebral protection contributes to lower hospital mortality rate to 28% [9]. Reversible unilateral limb palsy is a rare complication of the procedure, in 3.8% observed according to some studies [10]. To our knowledge this is the first reported case of direct Seldinger cannulation of a Stanford A aortic dissection in the literature.

References

Atheroembolic complications associated with retrograde perfusion. However, routine axillary artery cannulation to avoid potential malperfusion and of choice in aortic dissection surgery. However, many groups have moved to congratulate the authors for this precise technique.

Retrograde perfusion via the femoral artery has been the perfusion mode We read with interest the paper of Gobolos and co-workers doi:

**References**


**References**

