Case Series: Contained Rupture of Femoral Anastomotic Aneurysms

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Introduction

- Femoral anastomotic aneurysms (FAA) are well-known late complications of aortofemoral grafting.
- Most are asymptomatic and detected incidentally or by surveillance imaging.
- FAAs may thrombose and lead to graft limb thrombosis secondary to poor outflow.
- Ruptured FAAs are relatively uncommon and may present as a palpable pulsatile groin mass or hematoma. They require immediate surgical repair.

Other indications for repair include a size threshold of 3 cm in transverse diameter (similar to native femoral artery aneurysms) and the presence of symptoms (e.g., pain and/or paresthesias secondary to compression of the adjacent femoral nerve).

Methods

- We present a retrospective, observational case series of patients who presented with ruptured femoral anastomotic aneurysms from 1997-2019 at two mid-sized suburban teaching hospitals.
- Of note, during the same time interval 45 patients underwent repair of unruptured femoral anastomotic aneurysms.

Table I Characteristics of five patients who developed femoral anastomotic aneurysms.

<table>
<thead>
<tr>
<th>Initials</th>
<th>Age</th>
<th>Original Surgery</th>
<th>Indication</th>
<th>Elapsed Time</th>
<th>Presenting Symptoms</th>
<th>Repair</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>MB</td>
<td>62M</td>
<td>ABF bypass</td>
<td>AODD</td>
<td>5 years</td>
<td>Left groin hematoma</td>
<td>Interposition Dacron graft (6 cm)</td>
<td>Satisfactory functional outcome</td>
</tr>
<tr>
<td>IN</td>
<td>64M</td>
<td>ABF with left limb revision</td>
<td>Iliac artery occlusive disease</td>
<td>7 years</td>
<td>Left groin hematoma</td>
<td>Removal of infected left limb of ABF graft with native iliac and proximal graft; subsequent crossover right common femoral to left profunda bypass</td>
<td>Patency restored graft for past 3 years without evidence of recurrent infection</td>
</tr>
<tr>
<td>JD</td>
<td>77M</td>
<td>ABF bypass</td>
<td>Iliac artery occlusive disease</td>
<td>10 years</td>
<td>Right groin mass</td>
<td>Interposition PTFE graft</td>
<td>Death at 3 years from respiratory failure</td>
</tr>
<tr>
<td>PG</td>
<td>81F</td>
<td>Aorto-right femoral, left external iliac bypass</td>
<td>Infrarenal AAA (4.5 cm)</td>
<td>11 years</td>
<td>Right groin hematoma</td>
<td>Interposition Dacron graft (6 cm)</td>
<td>Death at 3 months from cerebellum necrosis</td>
</tr>
<tr>
<td>MJ</td>
<td>91F</td>
<td>Aorto-right femoral, left common iliac bypass</td>
<td>Infrarenal AAA (6 cm)</td>
<td>14 years</td>
<td>Right groin mass</td>
<td>Interposition Dacron graft (6 cm)</td>
<td>Made hospice and died on POD 3</td>
</tr>
</tbody>
</table>

ABF= Aortobifemoral bypass
AODD= Aortoiliac occlusive disease
AAA= Abdominal aortic aneurysm

Figure 2: CT angiography demonstrating an aneurysm at the right femoral anastomosis of aortobifemoral bypass graft.

Results

- Femoral anastomotic aneurysms usually occur due to degeneration in the arterial wall with repeated hip flexion and extension resulting in gradual disruption of the anastomosis. They may also develop in the setting of an infection and present as a mycotic aneurysm as in one of our patients.
- Rupture of such aneurysms is a rare event and may present with a painful pulsatile mass, groin hematoma, or hemorrhage.
- These require operative repair with a prosthetic interposition graft between the proximal prosthesis and a patent distal artery (usually common femoral, profunda or superficial femoral artery) and generally have satisfactory outcomes.
- Ernst et al demonstrated that repaired FAAs may even recur especially if there is history of wound complications following the initial aortofemoral bypass or FAA repair.

Conclusions

- Femoral anastomotic aneurysms are a late complication of aortofemoral grafting which may lead to rupture.
- Most are asymptomatic and can be diagnosed clinically with confirmation on duplex imaging.
- Thrombosis of the aneurysm with thrombosis of the graft limb is more common than rupture. However, both require emergent intervention.
- These patients should undergo long term surveillance imaging indefinitely following aortofemoral grafting.

References