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**Positional Compression of the Axillary Artery in the Thoracic Outlet: The Spectrum of Lesions in the Overhead Athlete**


**Objectives:** To review the spectrum of axillary artery pathology in overhead throwing athletes.

**Methods:** A retrospective review of high-performance athletes who underwent multidisciplinary management for axillary artery lesions in a specialized referral center. Treatment outcomes were assessed with respect to the pathologic entity, initial treatment, and operative management.

**Results:** Between 1/2000 and 12/2009, 8 male baseball players were treated for dominant arm arterial insufficiency. The median age was 31.9 years. Five patients had thrombotic occlusion of the axillary artery at the humeral head, 1 had axillary artery dissection, and 2 had circumflex humeral artery aneurysms. Distal thromboembolism was present in 4 patients (50%). Four patients underwent transcatheter thrombolysis and/or angioplasty with stenting prior to referral. The interval from onset of symptoms until referral ranged from 1 week to 2 years. Six patients underwent segmental replacement of the diseased axillary artery with a reversed saphenous vein bypass graft and 2 had excision of circumflex humeral branch aneurysms, with 2 requiring intraoperative thrombolysis into the brachial artery. After median follow-up of 28 months, the assisted primary patency rate was 88% (7/8) and the secondary patency rate was 100% (8/8). The mean time to return to normal unrestricted activity was 11.1 weeks, with 7 of 8 patients resuming careers in professional baseball.

**Conclusions:** Repetitive positional compression of the axillary artery in the overhead throwing athlete can cause focal intimal hyperplasia with subsequent thrombosis, dissection, or aneurysmal degeneration. The threatening nature of these unique pathologic lesions requires prompt recognition. Successful treatment should include decompression, mobilization and segmental replacement of the diseased axillary artery as well as management of any antecedent thromboembolism with full functional recovery almost always anticipated.

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**RR33.**

**Iatrogenic Arterial Complications of Spine and Orthopedic Operations**

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**Objectives:** Iatrogenic arterial injury is a rare but well recognized complication of orthopedic and spinal surgery. The objective of the present study was to assess early and late results of arterial repair following such injury.

**Methods:** Thirteen patients developed major arterial complications following orthopedic and anterior lumbar spine operations in three teaching hospitals from 2003 to 2009. Data were collected on a continuing basis from a vascular registry and analyzed retrospectively.

**Results:** The majority of the patients (eleven of thirteen) presented with acute bleeding or arterial thrombosis resulting in acute ischemia. One patient presented three months later with a pulsatile mass behind the knee (popliteal artery pseudoaneurysm) and one patient presented with a painful mass in the left chest wall (arteriovenous fistula) ten years following shoulder operation.

**Conclusions:** Arterial complications following orthopedic and spine surgery can be successfully managed by endovascular/open techniques; however, significant morbidity with increased length of hospital stay is common. Patient dissatisfaction with the complication and need for ensuing treatment can have significant medicolegal implications.

<table>
<thead>
<tr>
<th>Complications of spine operations.</th>
<th>Incidence</th>
<th>Presentation</th>
<th>Management</th>
<th>Complications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anterior lumbar spinal fusion 6/320 (0.0188%)</td>
<td>Iliac artery thrombosis = 2</td>
<td>Iliac artery stent = 2</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>Thoracic aortic pseudoaneurysm = 1</td>
<td>Thoracic aortic pseudoaneurysm</td>
<td>Repair using aortofemoral bypass = 1</td>
<td>None</td>
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</tr>
<tr>
<td>Thoracic aortic pseudoaneurysm = 1</td>
<td>Contained lower thoracic aortic rupture = 1</td>
<td>Repair using aortofemoral bypass = 1</td>
<td>None</td>
<td></td>
</tr>
</tbody>
</table>

*Initial surgery performed in outside institution.*