



Management of Sub Clavian Artery Pseudo Aneurysm

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DESCRIPTION

Penetrating less than 2% of all human vascular traumas involve the sub clavian artery. When there is an absence of integrated artery wall construction, blood leaks through the wall and is then encircled by perivascular tissue, leading to the development of pseudo aneurysm. Even for skilled surgeons, these injuries are difficult to treat due to the complex local anatomy and problematic surgical exposure of the proximal injuries. The common femoral artery is the most frequent location for pseudo aneurysms, followed by the radial and brachial arteries. Sub clavian artery pseudo aneurysms are uncommon. The outcomes of a retrospective examination of our therapy and surgical approaches to sub clavian artery pseudo aneurysm are being presented. The majority of unintentional arterial ruptures that result after central venous catheterization, endovascular therapeutic treatments, or after penetrating or forceful trauma result in sub clavian artery pseudo aneurysms, which are common and uncommon. Pain, edema, or other compressive symptoms are typically apparent at a late stage in the clinical course of the disease. There is still disagreement over the best course of action in this circumstance. After trans jugular hepatic biopsy, the authors describe a case of late presentation of sub clavian artery pseudo aneurysm and address the various therapeutic options.

Invasive operations like percutaneous cardiac interventions or post-AV fistula dialysis needle puncture are the most common iatrogenic causes of a post-traumatic pseudo aneurysm. When using the jugular or sub clavian methods, accidental artery puncture happens in about 1% and 2.7% of cases, respectively. Because there is a death rate of around 75% before to hospitalization and long-term morbidity is brought on by brachial plexus injuries, penetrating knife wounds to the sub clavian arteries are particularly severe. The location and size of the aneurysm affect the symptoms of a sub clavian artery aneurysm. Intra thoracic aneurysm or post-stenotic dilated aneurysm may compress the brachial plexus or upper extremity arteries, resulting in ischemia of the limb. Extra thoracic aneurysm typically appears as pulsatile swelling over delta pectoral groove with pulsation and vascular murmurs. Aneurysms

that damage the apex of the lung can result in hemoptysis and compress the recurrent laryngeal nerve, which causes hoarseness of voice. Additionally, there have been reports of Horner's syndrome and dysphagia. However, tracheal compression-related dyspnea is rarely noted.

An angiogram is crucial for identifying the injury site, determining whether patients may benefit from endovascular intervention, and most importantly for organizing the surgical strategy. In our situations, a CT angiography was performed to confirm the severity of the injury and a surgical strategy was used for the operation. Recent studies have shown that surgical repair is not always preferable for treating penetrating sub clavian artery aneurysms because there may still be a higher risk of infection in the remnant pseudo aneurysm sac when using a sub clavian artery stent to shut the neck of the pseudo aneurysm. If the problem manifests later, sub clavian artery resection and interposition grafting may be required for repair. Removal of any remaining pseudo aneurysm is required. For the management of penetrating Sub clavian artery injuries, various surgical approaches have been described in various literatures, such as midline sternotomy and anterolateral thoracotomy (trap door incision). In this study, the sternotomy and/or supraclavicular incision are used for excellent exposure and proximal vascular controls, which reduces the risk of bleeding as well as complete excision of pseudo aneurysmal sac with repair of vascular injury. When necessary, the innominate artery and carotid artery should be blocked, or the procedure should be carried out under extracorporeal circulation while the patient is in a deep hypothermic cardiac arrest.

Surgery is extremely difficult to do on sub clavian artery pseudo aneurysms, especially when they come from the proximal third. Large pseudo aneurysms may burst or manifest compressive symptoms. Several alternatives are available if intervention is deemed required, including open surgical excision and vascular reconstruction, endovascular exclusion, stent graft insertion, and ultrasound-guided thrombin injection. Based on comorbidities, clinical presentation, and anatomical features, the procedure selection should be customized for the patient. Open communication is advised when compressive symptoms are

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Received: 10-Jun-2022, Manuscript No. JVMS-22-17262; **Editor assigned:** 13-Jun-2022, Pre QC No. JVMS-22-17262 (PQ); **Reviewed:** 04-Jul-2022, QC No. JVMS-22-17262; **Revised:** 11-Jul-2022, Manuscript No. JVMS-22-17262 (R); **Published:** 18-Jul-2022, DOI: 10.35248/2329-6925.22.10.465

Citation: Aurora V (2022) Management of Sub Clavian Artery Pseudo Aneurysm. J Vasc Surg. 10:465.

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present. Although technically challenging due to their placement, surgical exposure of the pseudo aneurysms may necessitate a sternotomy or a clavicular resection for appropriate exposure. A sufficient landing zone and the absence of significant tortuosity are necessary for an endovascular

approach. Cervical radiculopathy is possible when arterio venous fistulae and spinal vein hypertrophy are confirmed, which leads to an increase in venous pressure (2%-4%). This case report illustrates the difficulty of treating sub clavian pseudo neurysms by describing a rare manifestation of the condition.