

Case Report

Anaesthetic Management of a Right Subclavian Artery Pseudoaneurysm Posted for Aneurysmal Repair

Rajesh Kumar*

Department of Anesthesiology, Sri Ramachandra Institute of Higher Education and Research (SRIHER), Chennai, India

***Corresponding author**

Rajesh Kumar, Department of Anesthesiology, Sri Ramachandra Institute of Higher Education and Research (SRIHER), Chennai, India

Submitted: 25 July 2023

Accepted: 30 August 2023

Published: 31 August 2023

ISSN: 2378-9344

Copyright

© 2023 Kumar R.

OPEN ACCESS**Keywords**

- Pseudoaneurysm
- Subclavian artery
- Aneurysmal repair

Abstract

Introduction: Symptomatic patient with right subclavian artery pseudoaneurysm posted for elective aneurysmal repair. Incidence represents less than 1% of all vascular lesions.

Case Presentation: 62 year old male patient

Main Symptoms: Patient had complaints of hoarseness of voice, difficulty in swallowing, and breathing difficulty for 1 week.

Main Diagnosis: Pseudo aneurysm of a right subclavian artery causing compression of right Internal jugular vein and left Superior vena cava, Diabetes mellitus

Main Interventions: Indirect Laryngoscopy, Computed Tomography-Aortogram, thoracotomy, aneurysmal repair

Main Outcomes: Repair of right subclavian artery pseudo aneurysm

Conclusion: In pts with subclavian artery pseudo aneurysm repair, major concerns will be of blood loss, postop analgesia, postop integrity of the repaired artery, and hemodynamic stability. All these concerns were taken care of intraoperative via controlled ventilation, pectoral nerve block, vasopressors, maintaining airway pressures, and smooth extubation

INTRODUCTION

Subclavian artery aneurysm is an extremely rare disease that develops in < 1% of all aneurysms. True aneurysm caused by atherosclerosis, thoracic outlet syndrome or post-trauma. Pseudoaneurysm develops when there is a lack of integral arterial wall structure, resulting in blood leakage through the wall, and then wrapped by perivascular tissue. Subclavian artery pseudoaneurysm (SAP) [1] is rare and can present with catastrophic complications.

PATIENT INFORMATION

62 years old male patient presenting with complaints of breathing difficulty, hoarseness of voice and difficulty in swallowing for 1 week. Known case of Diabetes mellitus on Oral hypoglycemic agents for past 20 years not on any other medications. Electrocardiogram showed Normal sinus rhythm and Chest ray showed Trachea shifted to right with bilateral increased broncho vascular markings. 2D Echocardiography revealed Normal chamber dimensions, Normal Left ventricular

systolic function with Grade 1 diastolic dysfunction, Ejection fraction - 62%, trivial Tricuspid Regurgitation and Mitral regurgitation with Normal Pulmonary artery pressure. Indirect Video laryngoscopy showed Right side vocal cord palsy with Left side non-compensating. Post admission Computed Tomography-thorax was done which showed features s/o saccular aneurysm of right subclavian artery [2] following which a Computed Tomography- Aortogram was advised for the confirmation of same. Computed Tomography Aortogram revealed Saccular Aneurysm of size 4.2x 3.7x 4.8cm noted arising from lateral wall of right subclavian, 9mm from the origin with diameter of neck 1.2cm. Aneurysm seen extending into middle mediastinum - retrosternal region and aneurysmal dilatation seen compressing the right IJV and proximal SVC with partial eccentric filling defect suggestive of partial thrombosis (Figure 1).

Anaesthetic Management

Fasting guidelines followed as per institutional protocol, OHA withheld on the day of surgery, Adequate blood and blood products reserved.

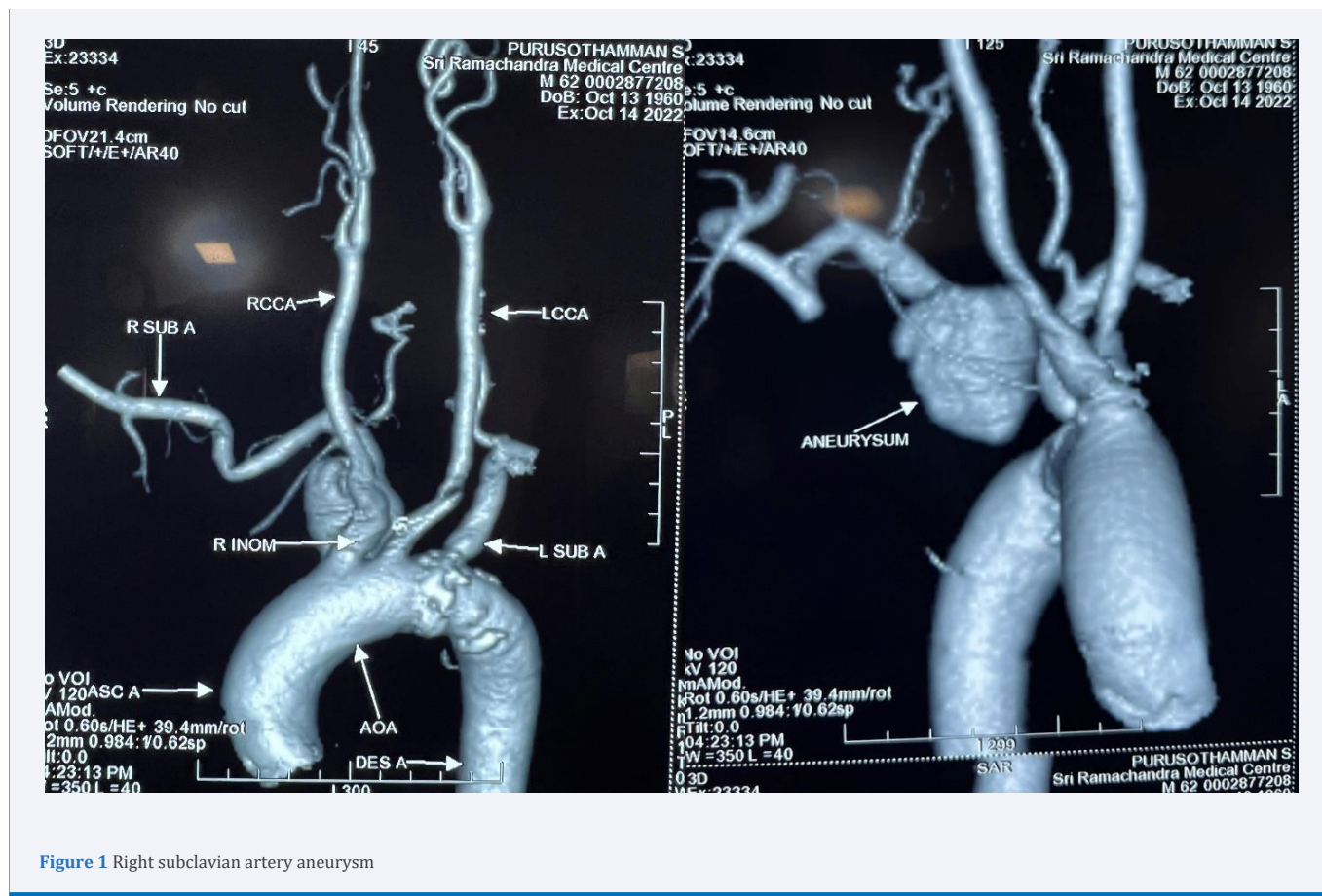


Figure 1 Right subclavian artery aneurysm

Plan of Anaesthesia

General anaesthesia with endotracheal tube intubation with controlled ventilation. Arterial line cannulation for hemodynamic monitoring. Right Internal jugular vein was cannulated. Ultrasound guided right pectoral nerve block for postoperative analgesia.

Concerns

Vascular injury - blood loss, Pain, Hemodynamic stability

Goals

- o Maintain airway pressures and adequate ventilation
- o Pectoral nerve block for intraoperative and postop analgesia
- o Maintain adequate hydration
- o Blood transfusion

Management and Specific Operating Room Preparation

ASA standard machine check and OT preparation was done.

Preinduction, all standard ASA monitors were connected,

16 G IV cannula was secured in Lt cubital vein, left radial artery was cannulated with 20 G jelco. After preoxygenation, patient was induced with fentanyl 150 mcg, thiopentone 250mg and vecuronium 8 mg. Airway was secured with 8.5mm cuffed endotracheal tube and tube was fixed at 21cm. Rt IJV was cannulated with 7 Fr triple lumen catheter.

Ultrasound-guided bilateral PEC 2 block given with 20ml of 0.25% Bupivacaine on each side. Controlled ventilation with FiO_2 0.5 and respiratory rate 14 maintained intraoperatively. After adequate surgical exposure, right subclavian artery was looped [2], while handling the pseudo aneurysm it was ruptured, blood loss controlled and hemostasis achieved with surgical repair using Bovine pericardial patch. During the surgical repair, blood pressure was maintained with Inj Noradrenaline 0.1mcg/kg/min and 1-unit Packed red blood cells transfusion. At the end of surgery, patient was extubated after adequate reversal of neuromuscular blocking agents and airway suctioning with positive pressure. Following extubation patient was shifted to the Intensive care unit for further observation and management

Diagnostic Assessment

Diagnostic Methods

- Chest Xray: on admission, post-operative day 1
- 2D Echocardiography: on admission

- Both as preoperative assessment for elective surgical patient
- Computed tomography Thorax – on admission as a Choice of diagnostic aid as the patient presented with complaints of breathing difficulty, hoarseness of voice, and difficulty in swallowing.
- Computed tomography Aortogram: Day 1
- As Computed tomography thorax showed f/s/o saccular aneurysm of right subclavian artery with compression of major vessels

Therapeutic Intervention

- Oral hypoglycemic agents: Patient is a known case of Diabetes mellitus
- Oxygen, inotropes: to maintain hemodynamic stability, tissue perfusion and oxygenation.
- Thoracotomy: for subclavian artery pseudoaneurysm repair [1]

Follow-up and Outcomes

Vitals were monitored postoperatively. Patient was given adequate postoperative pain relief and shifted to ward on Post-operative day 3.

DISCUSSION

Patient came with complaints of breathing difficulty and compressive symptoms which required immediate surgical intervention for relief of the same. Surgical access to subclavian artery with thoracotomy /sternotomy is risky as it surrounds major vessels and brachial plexus prone for major blood loss and post op neurological deficits. Thus, maintaining hemodynamical stability during the vascular repair was the major challenge which was done with vasopressors and volume replacement with fluids and blood products. Intraoperative ventilation was titrated for maintaining adequate oxygenation. Postoperative analgesia helps in fastened recovery and preventing postoperative respiratory complications. Surgical handling of the pseudoaneurysm with retrosternal extension could have caused massive bleeding. Cardiopulmonary bypass was kept ready standby for emergency purposes.

REFERENCES

1. Lee KS, Jung Y, Jeong IS, Song SY, Na KJ, Oh SG. Open surgical treatment of subclavian artery pseudoaneurysm after endovascular repair: a case report. *J Cardiothorac Surg.* 2022; 17: 25.
2. Pratap S, pany P, Phansalkar DS. Pseudoaneurysm Arising from Branch of Subclavian Artery- A Rare Entity, *European Journal of Molecular & Clinical Medicine,* 2022; 9: 10387-10394.