Femoral Artery Rupture After Sneezing, Presenting to Emergency Department Withhaemorrhagic Shock: A Rare Post Operative Complication

Abstract

Femoral Artery Rupture is a rather serious and life-threatening complication of surgeries involving the anterior compartment of the thigh and knee. Here we present a case of a 15-year-old patient, a post-operative case of Bilateral osteotomy for Genu Varus, presenting to the Emergency Department (ED) in Haemorrhagic Shock after merely sneezing and spontaneously rupturing his femoral artery.

Keywords: Haemorrhagic Shock, Femoral artery aneurysms, Blood Pressure, osteotomy

Introduction

Femoral artery aneurysms are more commonly seen in individuals who are older than 70 years of age and male. Femoral artery aneurysms can be bilateral in up to 70% of cases. Up to 25% of patients with femoral artery aneurysms can have an abdominal aortic or iliac artery aneurysm. Risk factors for femoral artery aneurysms include smoking, arteriosclerosis, high blood pressure, and systemic connective tissue disorders [7,8].Aneurysms, which are quite rarely localized in peripheral arteries, are most common in the popliteal arteries. A profunda femoris artery (PFA) aneurysm is a very rare vascular pathology [9].

Case Report

A 15-year-old male patient, presented to the Emergency Department, complaining of pain and swelling in his left lower limb. The patient had recently undergone high corrective osteotomy for Genu Varus and was Day-5 post-op. On Arrival his Blood Pressure was 80/60 mmHg, Heart Rate-140 bpm, Respiratory Rate- 34 breaths per minute, with a Point of Care Glucose being 140 mg/dl. Primary Survey showed no immediate risk to airway, but the blood pressure was worrying and immediate resuscitative measures were taken. As per the history taken while resuscitation, the patient undergone corrective osteotomy for underlying Genu Valgum and was discharged on Day 3 post op uneventfully. Prior to arriving to the Emergency Department, the patient was his usual self, when he suddenly had a bout of sneezing and felt a “pop” in his left thigh followed by extreme pain and loss of power in the affected limb. He also complained of swelling and intractable pain and had a 10 second period of syncope.

On examination, the left thigh was significantly swollen with reduced pulsations noted in the popliteal, anterior and posterior tibial and dorsalis pedis along with significant pallor noted (all pointing towards a vascular injury). Initial venous blood gas showed Severe metabolic Acidosis with a pH-7.00 along with High lactates (6.2), with a Point of Care Hb being 7.2 gm/dl. Immediate resuscitative measures were initiated. Massive Transfusion protocol with 1:1:1 of Packed Red Cells, Fresh Frozen Plasma and Platelet Concentrates was administered with a Targeted Mean Arterial

Pressure of 65 mmHg. Anti Haemorrhagic measures with Tranexamic Acid boluses of 1 gm followed by 1 gm over 8 hours, along with Calcium Supplementation (10 ml of 10% Calcium Gluconate) were administered. Hypothermia Prevention was initiated with warm saline infusion along with massive transfusion protocol. In view of impending compartment syndrome with underlying vascular injury, orthopaedics and vascular surgery was consulted. Stitch line was opened in the Emergency Department itself and an active ooze was noted along the middle third junction of the left femur and the implant with a friable clot noted on the femoral artery. Emergency ligation of the cut femoral artery was done using ETHILON 5-0 sutures and the patient was prepped for emergency wound exploration and left femoral artery reverse Left Saphenous Vein Bypass. The patient was shifted to the operating room with stable vitals. The procedure was uneventful, the patient was managed with regular dressings, intravenous antibiotics, intravenous fluids, anticoagulation and supportive management. At the time of discharge, left lower limb pulses were present, left footdrop was resolving with left toe and ankle movement improving.

Discussion

Femoral artery rupture is a deadly albeit rare complication in lower limb surgeries. The femoral artery is the main blood supply vessel of the lower extremity, and its damage is the most serious. The symptoms are more obvious than the branches and it is easy to diagnose. Rupture of the superficial femoral artery often causes bruising of the surrounding soft tissue and a drop in temperature in the surrounding skin, so doctors find it easier to detect. [1.2]

The deep femoral artery traverses down the thigh close to the femur than the femoral artery, running between the pectineus and the adductor longus, and runs posterior to the adductor longus. Because these muscles and tubular structures are surrounded, the deep femoral artery is not vulnerable. Due to the presenceof these anatomical structures, the rupture of femoral deep artery usually comes with non-specific clinical features like pain, hematoma, swelling, fever, anaemia and haemorrhagic shock[3]. These non-specific clinical features might not alert doctors of ruptured arteries, often leading to delayed diagnosis. Although the incidence of deep femoral arteries and their branches is extremely low, there have been reports of such iatrogenic injuries by physicians [4], secondary to artery aneurysm [5.6].

Sneezing, coughing or any sudden increase in intra-abdominal pressure can cause rupture of an already existing aneurysm or a friable tissue like a clot, present on a rent caused by surgery, to dislodge and cause massive bleeding. A high tibial osteotomy corrects angular deformities of the knee joint- especially varus deformities. Complications arising from the surgery are usually rare albeit dangerous and sometimes limb or life threatening. While sneezing can temporarily increase blood pressure, there's no direct evidence or studies showing that sneezing can cause a femoral artery to rupture yet.

Conclusion

The mere presence of haemorrhagic shock in patients presenting to the Emergency Department should be a red flag for all clinicians. Activation of Massive transfusion protocols, with Haemorrhage control and prevention of hypothermia should be the blue print of all trauma resuscitations. However vascular involvements require extra vigilance and care and the clinician should be able to

differentiate between the “Hard” and “Soft” signs of Vascular injury. Proper clinical examination along with detailed history taking can aid the clinician to help and resuscitate the patient on time and correctly. Femoral Artery ruptures can be devastating and can lead to limb and life loss if not treated promptly.

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