Case report

Case report on the management of thrombosis in popliteal artery, arterial embolization and thrombosis of left limb

ABSTRACT

INTRODUCTION: Arterial vascular occlusion can be caused by an embolus or acute thrombosis. Acute arterial occlusion can be induced by iatrogenic damage, such as that produced by the insertion of invasive catheters used for arteriography. It can occur as a result of PTA or stent implantation, the use of an intraaortic balloon pump, or IV drug addiction. Other causes include fractures, crush injuries, and penetrating wounds that change the intima of the artery. Reliable identification of an arterial blockage as embolic or thrombotic in origin is necessary to begin appropriate therapy.

CLINICAL FINDINGS: On examination vitals was heart rate is 80 beats/min respiration 22beats/min blood pressures 120/80 mmHg temperature 97^{o}F the chest was clear, patient is oriented on local examination gangrene over left lower limb, RTPCR test was done and patient was put in isolation ward and on day 3 the RTPCR report is negative.

DIAGNOSTIC EVALUATION: Coagulation profile **APTT**-31.5, **PT**-16.5, **INR**-1.28, **UREA**-16, **SODIUM**-128, **POTASSIUM**-4.3, **RTPCR**-NEGATIVE, **HBSAG**-NON-REACTIVE, **HCV**-NONREACTIVE.

THERAPEUTIC INTERVENTION: The patient was taken to the catheterization lab and local anesthesia is given and balloonplasty was done using ARMADA 4MM X 120cm with that Inj. Urokinase 1.5 Lac IU is given stat by infusion the

CONCLUSION: My patient aged 24 years male was admitted to Cardiac unit in AVBRH hospital Sawangi (M) Wardha on date 25/03/2021 for visit in hospital OPD with complaints of leg pain with redness and swelling over the leg,

KEYWORDS: catheterization, balloonplasty, infusion, arterial, arteriography, occlusion

INTRODUCTION:

An embolus or acute thrombosis can cause arterial vascular occlusion. Iatrogenic damage, which can occur during the insertion of invasive catheters like those used for arteriography, can cause acute arterial occlusion[1-2]. It could be the result of a PTA, a stent placement, or an intra-aortic balloon pump, or it could be the result of IV drug abuse. Other causes include fractures, crush injuries, and penetrating wounds that change the intima of the artery. Precise identification of an arterial blockage as embolic or thrombotic is essential before effective treatment can begin[3]. Arterial emboli are most usually caused by thrombi that form in the heart chambers as a result of arterial fibrillation or myocardial infarction. These thrombi get separated and are conveyed into the arterial system from the left side of the heart, where they lodge in and clog an artery smaller than the embolus[4].

TIMELINE:

24 years male from Shakti Nagar Chandrapur was admitted to Cardiac unit on 25/03/2021 he came with complaints of leg pain with redness and swelling over the leg, He weighs 50kgs with height is 155 cms.

PATIENT IDENTIFICATION:

A 24 years old male came to AVBRH on 25/03/2021 for a check-up with complaints of leg pain with redness and swelling over the leg from 1 months he underwent certain diagnostic evaluation and was diagnosed as blood test with radio imagining and diagnosed as arterial embolism.

PRESENT MEDICAL HISTORY:

A 24 years old male came to AVBRH on 25/03/2021 for check-up with complaints of leg pain with redness and swelling over the leg from 1 month he underwent certain diagnostic evaluation and diagnosed as blood test with radio imagining and diagnosed as arterial embolism.

PAST MEDICAL HISTORY:

My patient has a history of Hypertension from 1 year with and diabetic from 6 months and the patient is history of and road traffic accident 2-3 years back and the implant was placed on right arm and he is on treatment Tab.glycomet and Tab. amlodipine 5mg. he having history of chewing Tabacco daily and smoking daily with consuming alcohol occasionally and he admitted in hospital before 1 months for the viral fever 1months ago and he was admitted at his village hospital.

FAMILY HISTORY

My patient's family comprises four members. He was diagnosed with Arterial thrombosis with no abnormal genetic history from her parents. The parents had a non-consanguineous type of marriage. Except for the patient admitted to the hospital, other family members don't have any complaints regarding their health.

PAST INTERVENTIONS AND OUTCOME:

My patient was a history of Road traffic accidents and he underwent the surgery ORIF(open reduction internal fixation) before 2-3 years back (documents not available, history told by the patient) the implant was fixed in the right arm at radius the patient was admitted 7 days in a local hospital and get discharged with a permanent implant the patient received 1-2 pack red blood cell was administered with antibiotics and analgesic after vitals stable and condition the stable patient was discharged with follow-up care.

CLINICAL FINDINGS:

My patients had undergone diagnostic evaluation such as radio imagining like CT-SCAN lower limb and diagnosed as arterial embolism at the popliteal artery and the local examination found gangrene over lower left limb with above chief complaints.

PHYSICAL EXAMINATION

On general examination the patient was oriented with good posture and skin condition was good no any kind of scar, lesion, rashes present, texture is soft. There is no any kind of abnormality in head, face eyes ear nose and neck, the upper extremities are good but in lower extremities left lower limb contains gangrene. On the systemic examination, there is a good cardiac condition, with normal bladder and bowel movements and the patient are oriented.

DIAGNOSTIC ASSESSMENT:
BLOOD TEST: APTT-31.5, PT-16.5, INR-1.28, UREA-16, SODIUM-128, POTASSIUM-4.3, **VIROLOGY:** RTPCR-NEGATIVE, HBSAG-NON-REACTIVE, HCV-NONREACTIVE, **RADIO IMAGINING:** lower limb and diagnosed as arterial embolism at popliteal artery

MANAGEMENT:

MEDICAL MANAGEMENT: Inj.Urokinase 1.5 Lac IU stat, followed by infusion 1 lac IU/Hr. total 5 Lac through spray catheters. Inj.Heparin 1000 IU/HR for 10 hrs. from sheath, Inj.Nikoran 2mg/hr, total 48 mg to be given, Tab.Ecosprin 150 mg OD, Tab.Clopitab 75mg OD, Inj.Ceftriaxone 1g BD for 5 days, Tab.Ultracet 50mg BD for 5days, Tab.Pantop 40mg OD for 5days, patient has advice to immobilized the leg for 48 hours till the sheath will not removed

SURGICAL MANAGEMENT:

The patient was transported to the catheterization lab on the fourth day of his admission for arterial thrombolysis of the left limb. Local anesthesia was administered, and a 5F cross over sheath was used to assess the right femoral artery. Angiograms revealed thrombotic in the distal sfs extending into the popliteal artery. The lesion is crossed with a 0.035 Fr Terumo guidewire, then a check angiography and balloon platy are performed using an ARMADA 4MM X 120 cm, selective catheterization of the left popliteal artery is verified, and a 5 F cook Multisideport spray catheter is inserted. Thrombotic arterial segment. Check shoot taken position confirmed and Inj Urokinase 1.5 lac IU is given stat followed by infusion. Patient was shifted to cardiac ICU during stay in ICU patient was advised not to mobilize the left lower leg stockings were applied and Inj Heparin 1000IU/hr. for 10 hrs.

NURSING MANAGEMENT:

This case belonged cardiology and medicine department therefore nursing care played a vital role in every aspect.

Table 1: PRE-OPERATIVE:

A. Nursing diagnosis: Pain in the abdomen related to gross ascites secondary related to a lump in the abdomen.

Nursing Interventions	Rationale
1. Assess the level of pain	1. To know the level of pain and frame further interventions.
2. Consult and coordinate with health care	2. To confirm the final diagnosis with staging and

team members of the various department included in the case.	prepare nursing diagnosis to provide effective care.
3. Administer the analgesics as well as chemotherapy as prescribed by the doctors.	3. To provide symptomatic pain relief and treat the tumor.

B. Nursing diagnosis: Low nutritional pattern less than body requirement related to pain perception secondary related to regurgitation.

Nursing Intervention	Rationale
1. Monitor the weight of the patient daily.	1. To collect the baseline data about weight loss with the pain perception.
2. Check the physician's order and administer antiemetic and supplementary medicines.	2. To avoid regurgitation and enhance the health of the patient.
3. Consult the dietician and provide a diet pattern to the patient's family to follow.	3. To provide the patient with a healthy diet in order to cope up with daily activities.

C. Nursing diagnosis: Fear and anxiety related to hospitalization secondary related to the consequences of surgical procedures.

Nursing Intervention	Rationale
1. Maintain rapport with patient and her family.	1. To induce comfort so that they can share about the queries and problems.
2. Provide information regarding disease condition and treatment modalities.	2. To increase knowledge regarding disease conditions and treatment modalities of the patient and family.
3.Counsel the patient regarding the mentioned fears and anxiety.	3. To prepare the patient for the surgery.

Table 2: POSTOPERATIVE:

A. Nursing diagnosis: Acute pain in abdomen related to surgical incision secondary related to insertion of pigtail catheter.

Nursing Intervention	Rationale
1. Obtain the level of pain on pain-scale	1. To prepare the post-operative nursing intervention on pain.
2. Provide diversional therapy to the patient.	2. To minimize the level of pain perception.
3.Provide a comfortable position to the patient.	3. To induce comfort and rest.
4. Administer the prescribed medications by	4. To help the patient cure fast and also to

the physicians.	reduce pain.

B. Nursing diagnosis: Risk of infection related to surgical incision and catheter insertion sites secondary related to low immunity.

Nursing Intervention	Rationale
1. Assess the surgical site on every shift further record and report if any pus formation is seen.	1. To know the wound healing and to check for presence of any infection.
2. Provide Foley's catheter care to the patient.	2. To prevent urinary tract infection.
3. Check the physician's note and apply new dressing on the sutured site on day 5 and day 8 after the surgery.	3. To prevent infection on the incision site and promote healing.

C. Nursing diagnosis: Activity intolerance related to surgical procedures secondary to pain perception.

Nursing Intervention	Rationale
1. Encourage the patient to do drink plenty of water.	1. To hydrate the body of the patient.
2. Advice the patient to perform deep breathing and leg exercises like early walking.	2. To reduce the risks of blood clots and chest infections
3.Explain the need of family-assisted care to the family members.	3.To carry out day-to-day activity and avoid any further injuries.

FOLLOW-UP CARE:

Follow-up care: In the event of an emergency, the patient is encouraged to attend the hospital.

He has been advised to take the following medications:

• Pantoprazole 40 mg once day for 7 days,

• 500 mg Tab.Paracetamol BD x 7 days (SOS),

• 1 month of Tab.Chymoral forte BD

• 1 month Tab.Limcee OD

• 2 tbsp BD protein powder x 1 month

The patient was also given the following advice:

1. Get enough rest to avoid fatigue.

2. To keep the body hydrated, consume lots of oral fluids.

3. To improve the body's hemoglobin level and immunity, consume a diet rich in iron and fibre.Deep breathing and leg movements, as well as early walking, can help to prevent blood clots and chest infections.

DISCUSSION:

A 24-year-old boy with complaints of numbness and blueish discoloration of the left lower limb, and diagnosed with arterial thrombosis and embolism of the left lower leg.

The arterial thrombosis was leading lot of problems. Venous thrombosis intravenous thrombolysis is used in rare occasions. It will even be given directly into the damaged blood artery during an angiography (intra-arterial thrombolysis) if the patient has a stroke after 3 hours or has substantial deep vein thrombosis (catheter-directed thrombolysis)[5]. Different studies on thrombosis and management were reviewed[6-10].

PAES is caused by fibrotic bands compressing the popliteal artery, which results in an improper connection between the popliteal artery and the myofascial structures of the popliteal fossa. PAES is a condition that can be inherited or developed through time. It's caused by the popliteal artery or myofascial tissues in the popliteal fossa developing improperly during embryology, This produces muscle hypertrophy, which further compresses the arteries. PAES has been claimed to have been acquired by high-performance athletes such as cyclists. The majority of cases of PAES have been documented in men.

CONCLUSIONS:

Iatrogenic damage, which can occur during the insertion of invasive catheters like those used for arteriography, can cause acute arterial occlusion. It could be caused by a PTA, a stent placement, or an intra-aortic balloon pump, or it could be caused by IV drug addiction. We encountered the case of a 20-year-old boy who presented with complaints of numbness and blueish discoloration of the left lower limb, indicating that the patient had an arterial thrombosis and embolism of the left lower limb. He was treated with balloon palsy and popliteal catheterization, followed by the administration of Inj.urokinase 1lac IU.

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