



ANASTOMOSIS OF RADIAL ARTERY - A CASE REPORT AND REVIEW OF LITERATURE

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ABSTRACT

Injury to radial artery is very common in trauma to the forearm. Previously, ligation of the radial artery was the technique followed. Recent advancements showed various techniques in the repair of the radial artery. A 28yr old male patient presented to the casualty with a lacerated wound over the forearm with spurting of blood. Patient was diagnosed to have radial artery injury and was taken up for emergency surgery. Primary repair of the vessel was done. Post-operative period was uneventful. Arterial Doppler showed patency of vessel.

KEYWORDS: Radial artery; Anastomosis; Doppler; Primary repair.

INTRODUCTION

Ligation was the principal treatment of arterial injuries of the extremities. Gangrene followed ligation in about 50 per cent of the cases. This subject was well reviewed by DeBakey and Simeone in 1946. Treatment of arterial injuries by suture or with vein grafts, with or without Blakemore vitallium tubes, was often unsuccessful, probably because injuries were seldom seen earlier than ten hours after injury. Recent developments in the use of arterial homografts had showed their possibilities for the treatment of arterial injuries. Arterial repair was considered for all "major" arterial injuries. "Major" arteries included the subclavian, axillary and brachial arteries in the upper extremity, and the iliac, femoral, popliteal and posterior tibial above the peroneal artery, in the lower extremity. The main questions were the tolerance of patients with multiple wounds for the additional operating time required for arterial repair, the hazard of infections in wounds with arterial repair, and the relation between the survival of extremities and the duration of time between injury and repair.

CASE REPORT

A 28 year old male presented with history of injury to the right forearm in his working place. He was brought to R L JALAPPA hospital. His vital signs were pulse rate: 104/min, respiratory rate: 18 cycles/min and Spo2 was 96% at room air. The right wrist was injured with a glass piece and there was profuse bleeding. Immediate application of pressure bandages was done at a local hospital and the patient was brought here. Upon examination, the radial pulse was absent in the right

forearm and the spurt of blood was noted. No injuries were found on other parts of the body. Tetanus prophylaxis was given and parenteral broad spectrum antibiotics were started empirically. Grave risk consent was taken and the patient was taken up for surgery immediately.

Upon exploration, cut ends of the vessel was noted. Primary repair of the vessel was done by using Prolene no 6-0 suture material. Intermittent sutures were applied. Patency of the vessel was noted after suturing. Subcutaneous tissue closed using Vicryl no 2-0 round body. Skin closed using Ethilon 2-0 cutting body. Cock up splint was applied. Post-operative condition was satisfactory. The wound improved significantly over the next two weeks and Doppler was planned after 4 weeks. Doppler study showed good flow in the vessel.



Fig 1: Intra-operative picture of wound.



Fig 2: During the surgery.



Fig 3: After anastomosis.

DISCUSSION

It is now known that the majority of the cases of injuries to arteries, especially the radial artery, occur in cases of trauma. The literature shows that the site of radial artery injury is typically in its more distal portion. The lesion site can be explained by the anatomy: The interruption of the arterial flow may be clinically evident. Therefore, a full systematic clinical evaluation of the patient, particularly in relation to limb vascularization, should be performed any doubts regarding vascular patency would justify performing arteriography or angiogram which is the gold-standard complementary examination for diagnosing arterial interruption. There is some discussion in the literature regarding whether there is a role for Doppler ultrasonography among these patients. Some authors have advocated its use. The neurological examination should also be performed during wound examination and should be directed toward the median, radial and ulna nerves. After the diagnosis of arterial injury has been confirmed, the patient should undergo emergency surgical treatment. Before the Korean War (1950–1953), the form of management from a vascular point of view that was best accepted in these cases can be summarized as arterial ligation. However, this management led to reports of no complications that lead satisfactory functional results. Therefore, there is now sufficient evidence in the literature for recommending vascular repair in all cases. Arterial ligation is an approach reserved for cases that require immediate

attention to other injuries or that present with severe hypovolemic shock.

If only the radial or ulnar artery is injured, then the plan of management depends on the amount of blood loss, degree of injury and the other associated injuries. If there is severe ongoing blood loss and the vitals are not stable, then ligation can be performed immediately, as it is life saving. If the vitals are stable, then we can go ahead with repair of the vessel. But if both vessels are injured, then we have to go ahead with repair of the vessels in order to save the hand.

CONCLUSION

Major vascular injuries are emergencies and should be managed by competent personnel. First-aid and appropriate repairing techniques will help in reducing morbidity and limb loss and avoidable mortality.

REFERENCES

1. Weaver FA, Papanicolaou G, Yellin AE. Difficult peripheralvascular injuries. *Surg Clin North Am*, 1996; 76: 843e59.
2. Bormann KR, Snyder III WH, Weigelt JA. Civilian arterial trauma of the upper extremity e an 11 year experience in 267 patients. *Am J Surg*, 1984; 148: 796e9.
3. Orcutt MB, Levine BA, Gaskill HV, Sirinek KR. Civilian vascular trauma of the upper extremity. *J Trauma*, 1986; 26: 63e7.
4. Myers SI, Harward TR, Maher DP, Melissinos EG, Lowry PA. Complex upper extremity vascular trauma in an urban population. *J Vasc Surg* 1990; 12: 305e9.
5. Creagh TA, Broe PJ, Grace PA, Bouchier-Hayes DJ. Blunttrauma-induced upper extremity vascular injuries. *J R Coll Surg Edinb*, 1991; 36: 158e60.
6. Andreev A, Kavrakov T, Karakolev J, Penkov P. Management of acute arterial trauma of the upper extremity. *Eur J Vasc Surg*, 1992; 6: 593e8.
7. Fitridge RA, Raptis S, Miller JH, Faris I. Upper extremity arterialinjuries: experience at the Royal Adelaide Hospital, 1969 to1991. *J Vasc Surg*, 1994; 20: 941e6.