

Peripheral Vascular Injuries – Four Years Experience

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Management of peripheral vascular injuries is a big problem for the emergency and trauma surgeon in Pakistan due to late presentation and poor facilities in the hospitals, which results in morbidity in the form of amputations of the limbs. This study was aimed to identify the mode of vascular injuries and causes of poor outcome. Nineteen cases were included in this study that presented in Orthopaedic Emergency Department of Mayo Hospital, Lahore General Hospital and Services Hospital, Lahore from January 1996 to December 1999. Late presentation, combined Arterial /Venous injuries and distal limb injuries resulted higher rate of complications. The commonest mode of injury was firearm (9). There were 12 isolated arterial injuries and 7 cases have both arterial and venous injuries. And 5 out of 7 resulted in amputation. The mean delay in presentation to emergency was 6 hours. In 3 cases early amputation was performed and 4 cases underwent secondary amputation after failure of repair. Time is an important factor in determining the final outcome of vascular.

Key words:- Vascular injuries, trauma, firearm, amputation.

Peripheral vascular injuries are usually managed by general surgeons but we are presenting this study which was conducted by the orthopaedic¹ surgeons. Peripheral vascular injuries are on the rise in Pakistan due to increasing trends of violence and irresponsible behavior on the roads in our society. Time is the crucial factor in the management of vascular injuries. If vascular repair is done within 6-8 hours, limb function is almost normal and if it is done later than 12 hours it usually results in amputation⁷. Purpose of this study was to find out the factors resulting in the late presentation of patients, common mode of injuries and results of repair.

Patients and methods

This is a retrospective analysis of 19 cases with vascular injuries who presented in the department of orthopaedics of Mayo, Lahore General Hospital and Services Hospitals. Time of injury, time of arrival and time of repair were noted. Other parameters noted were mechanism of injury site of injury, associated fractures, technique of repair and post operative complications. After fully resuscitating and evaluation, the patients were taken to operation theatre, vessel is explored and then fracture is fixed and finally vascular repair is done.

Results

Nineteen patients with vascular injuries included in this retrospective study. Sixteen were male and 3 female. The commonest mode of injury was firearm(9), second mode of injury was road traffic accident (RTA) (5), but third and interesting mode of injury was iatrogenic (3). Age of the patients ranged from 15 to 65 years with mean age of 25years. The commonest artery injured in the upper limb was brachial and in the lower limb was femoral. Arrival time to hospital ranged from 2 hours to 16 hours with average time of eight hours. In 14 patients direct end to end anastomosis was done. Arteriotomy was done in one case, while in 3 cases primary amputation was done and in

one case ligation of vessel was performed. In 8 cases required external fixation while in 2 cases plating was performed to stabilize the fracture. All the 3 cases presenting later than 12 hours had primary amputation. Five cases out of 7 with combined arterial and venous injuries resulted in primary amputation, while only 2 cases out of 12 with isolated arterial injuries resulted in amputation after repair. Three cases out of 4 with popliteal artery had amputation.

Table 1. Distribution according to mode on injury (n=19)

Mode of injury	No. of cases	%age
RTA	5	26.31
FAI	9	47.37
Iatrogenic	3	15.80
Toka injury	1	05.26
Stab injury	1	05.26

Table 2. Time of presentation

Time in hours	No. of cases
0-4	8
4-8	7
8-12	2
12-16	2

Out of 7 with combined arterial and venous injuries resulted in primary amputation, while only 2 cases out of 12 with isolated arterial injuries resulted in amputation after repair. 3 cases out of 4 with popliteal artery had amputations.

Table 3 Vessel Involved

Name of Vessel	No. of Cases	% age
Femoral Artery	7	36.84
Popliteal Artery	4	21.05
Brachial Artery	5	26.32
Radial Artery	2	10.53
Ulnar Artery	1	5.26

Discussion

Peripheral vascular injuries is very serious problem which most of the times results in a great morbidity in the form of amputation which in our society is social stigma as well as a big problem for the manual labourers of the country^{1,6,7}. In this study we have not used important tools for diagnosis of vascular injuries due to non-availability, diagnosis was made only on clinical judgement^{5,6}. Our study shows higher incidence of vascular injuries in male population than in female (16:3) which reflects that females are held back in homes in our society. The most common mode of vascular injuries in our study is firearm which shows increasing trends of violence in our society and second common mode of injury, RTA, also reflects our irresponsible behavior on roads. But the very interesting mode is iatrogenic injuries during surgery in the late hours at night. Amputation rate was higher in the patients who presented late. It was also higher in combined arterial and venous injuries, 5 out of 7, which is comparable to Tanveer et al, 1999, and Dhal et al,⁷ 1995.

Arrival time to hospital is also higher in our study and is comparable to Tanveer et al, 1999, but is much higher than Borros et al², 1994. Amputation rate is also higher in popliteal artery injuries as compared to other artery injuries, which is also comparable to other studies like Ayyaz et al 1993^{1,4,9}.

Conclusion

Vascular injuries should be taken as a serious Emergency. The various causative factors like violence and

irresponsible attitude on roads should be checked and arrangements should be made to transfer such patients to centres where facilities for vascular repair are available. Also such facilities should be provided at DHQ hospitals to decrease the morbidity of the patients.

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