ORIGINAL ARTICLE

Outcome of Management of Mycotic Pseudoaneurysms of Femoral Artery in IV drug abusers

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ABSTRACT

Objective: The purpose of this study is to 'determine the outcome of femoral vessels ligation and debridement in infected femoral aneurysm in intravenous drug addicts'.
Study design: Descriptive case series
Setting: All surgical wards of Mayo Hospital Lahore / King Edward Medical University.
Duration of study: The study was conducted from February 12, 2009 to August 12, 2009(6 months).
Subjects and methods: All male patients who had inguinal swelling and history of intravenous drug addiction were included in the study. Diagnosis of infected femoral artery pseudoaneurysm was made on clinical basis. In all patients both proximal and distal ends of femoral vessels were ligated and debridment of the wound was done.
Results: A total of 40 patients were selected during the study period. Ligation of vessels and debridement of the wound were performed in all patients. 9 patients with the percentage of 22.5% had distal amputations and 11 patients with the percentage of 27%, experienced intermittent claudication. The most common co morbid factor was diabetes mellitus with a percentage of 35% (14 patients). Similarly, due to needle sharing, 17 patients(42%) became anti HCV positive, 14 patients(35%) became anti HBSAg positive and 4 patients(10%) had HIV in their blood.
Conclusion: We concluded from our study that ligation of both ends of femoral vessels and local debridement of the wound is one of the best treatment option of femoral artery pseudoaneurysm resulting in acceptable outcome.
Key words: Intravenous drug abuser, femoral vessels, pseudoaneurysm.

INTRODUCTION

Humans have used drugs of one sort or another for thousands of years. Wine was used at least from the time of early Egyptians; narcotics from 4000 B.C.; and medicinal use of marijuana has been dated to 2737 B.C. in China. There followed ;a time when some of these newly discovered substances morphine, laudanum, cocaine were completely unregulated and prescribed freely by physicians for a wide variety of ailments. They were available in patent medicines and sold by traveling tinkers, in drugstores, or through the mail. During the American Civil War, morphine was used freely, and wounded veterans returned home with their kits of morphine and hypodermic needles. Opium dens flourished. By the early 1900s there were estimated 250,000 addicts in United States.

"Intravenous drug user" is now the preferred term instead of the previous, broad term of "drug abuser". This term also places focus on the major common cause of these medical complications. Although the term intravenous drug user excludes subcutaneous usage and the inhalation route used for "crack" cocaine intoxication, we use it because of its connection with the major infectious disease complications. There are many complications that may happen in intravenous drug abusers. Immediate complications are, hitting a nerve that is extremely painful and can cause temporary or permanent paralysis of the limb, most commonly occur when fishing for the femoral vein, hitting the artery for trying to access a deeper vein that can't be seen because the superficial veins have become blocked due to repeated injections.

Similarly, local complications of injecting such drugs are bruising at injection sites, formation of a sinus, cellulitis, ulcer, pseudoaneurysm , phlebitis and deep vein thrombosis . As far as other systemic complications are concerned , these include Endocarditis, pulmonary embolisim , damage to eye sight , septicemia and blood borne viruses like Hepatitis B , Hepatitis C and HIV (as well as other organisms) can be transferred from user to user wherever there is sharing of any injecting equipments.

Most of the patients with femoral artery pseudoaneurysm present with groin abscess , foul smelling discharge, profuse bleeding, swollen leg with multiple blackened injection sites , contracture at hip or knee joints, gangrene or infected foot or digits and decreased muscle bulge due to disuse atrophy, because of severe pain.

There are multiple treatment options for pseudoaneurysm but depends upon the presentation of the patient. If the patient presents in emergency with bleeding from pseudoaneurysm (in our country most of the patients present in emergency with profuse bleeding) , and there are signs of infection , treatment should be ligation of femoral vessels and debridement but if there is no infection then excision of pseudoaneurysm with revascularization should be done. In other cases where there is no bleeding , infection and the size is small then Ultrasound guided compression, obliteration and Thombin injection(these two treatments are not available in our set up) are the treatments of choice.

METERIAL AND METHODS

This descriptive case study was conducted from February 12, 2009 to August 12, 2009 in the Department of Surgery, King Edward Medical University/Mayo Hospital, Lahore 40 patients were studied during six months .

40 patients fulfilling inclusion and exclusion criteria were selected from all surgical wards of Mayo Hospital Lahore . Informed consent was taken . Biodata were collected from the patients including age ,occupation and residential address . All patients who were bleeding , resuscitated according to the standard protocol . Each patient underwent ligation of femoral vessels and debridement of the wound , and was operated by senior registrar of surgery . Associated problems were treated on merit . They were admitted for the period of one to three weeks and observed for one to five days for amputation and followed for three weeks for presence and absence of intermittent claudication . A record of bio data, post operative course and complications were kept on a pre-designed performa. All collected information was entered and analyzed using SPSS version (11.0). Age of the cases was presented by calculating mean ±SD. Presence and absence of amputation and intermittent claudication were presented by calculating frequency and percentage. Effect modifier like age and diabetes mellitus were dealt through stratification.

A total of 40 patients were selected during the study period in all the four surgical wards of Mayo Hospital Lahore, admitted through emergency. All patients were operated in emergency on the same date except two, who were operated on next day. All the selected patients were male and no female intravenous drug abuser presented to Mayo Hospital.

The rate of amputation from toe to above knee amputation was 22.5%. Amongst these 9 patients, 2 had big toe and 1st and 2nd toe amputation, 4 had below knee and 3 underwent above knee amputation. These patients had no pulse immediately after ligation of both proximal and distal end of femoral artery. In 5 patients, in addition to these 9, in spite of no distal pulses after ligation of both ends of femoral artery, their distal limb survived. Intermittent claudication was observed in almost all these patients having no clinical sign of distal pulses after operation. In addition to these 5, a total of 11 patients, that is 27%, complained of intermittent claudication. Frequencies of both amputation and intermittent claudication are highlighted in table 2 and 3 respectively.

Age of the patients

Valid	40
Missing	0
Mean	37.8250
Median	38.5000
Std. Deviation	6.75159
Range	28.00
Minimum	24.00
Maximum	52.00

Amputation

Valid	Frequency	%	Valid %	Cumulative %
Yes	9	22.5	22.5	22.5
No	31	77.5	77.5	100.0
Total	40	100.0	100.0	

Claudication

Valid	Frequency	%	Valid %	Cumulative %
Yes	11	27.5	27.5	27.5
No	29	72.2	72.2	100.0
Total	40	100.0	100.0	

DISCUSSION

The objective of this study that was made at the start of this research project was to see the outcome of ligation of femoral vessels in femoral artery pseudoaneurysm in terms of distal limb amputation and intermittent claudication and to prove that ligation of both proximal and distal vessels in pseudoaneurysm
and debridement of the wound without revascularization is a good alternative. Out of 40 patients only 9(22.5%) had amputation and 11(27%) had intermittent claudication. These results are compatible with the most studies, both national and international.

Cheng SW et al studied 21 infected femoral pseudoaneurysm and in 19, intravenous drug addicts were evaluated. Eight pseudoaneurysms involved only common or superficial femoral artery and 13

involved femoral bifurcation. Excision and ligation was performed as the sole procedure in 19 instances, and revascularization by bypass through the obturator route was carried out in two. One patient required an above-knee amputation. The resultant ischaemia was greater after triple vessel ligation (mean ankle:brachial pressure index (ABPI) 0.41) than single vessel ligation (mean ABPI 0.58). Postoperative bleeding occurred in one patient. Intermittent claudication was present in 14 patients after excision and ligation. Claudication was universal and more severe after triple than after single vessel ligation. There was no subsequent limb loss. Excision and ligation is safe and is the treatment of choice for infected femoral pseudoaneurysm in drug addicts.[86]

Khan IR, et al, carried out their study in Mayo Hospital in 2004,' the surgical outcome after ligation of femoral vessels in intravenous drug users in 19 patients' , their results were ; Entire limb survived in Eleven patients, Four had toe Amputations , Three ended in below knee amputation and One in above knee amputation.Most of the affected limbs can survive despite the major vessels being tied due to development
of collateral circulation.[6]

Naqi SA , et al studied 17 patients of femoral artery pseudoaneurysm during a 1 year period . Parenteral drug abuse was the most common etiological factor. The femoral artery was most commonly involved at its bifurcation. Sixteen patients (94%) had excision of the pseudoaneurysm with ligation of vessel and debridement without any revascularization and one patient (6%) had reverse saphenous grafting after excision and ligation of vessels. Four amputations (23%) were performed. Three (17%) were major limb amputations, which included one above knee and two below knee amputations. Four patients (23%) developed intermittent claudication. Excision of the pseudoaneurysm with ligation of vessels and wide debridement without immediate revascularization in infected pseudoaneurysms is a safe and effective treatment.[88]

CONCLUSION

Femoral Artery Pseudoaneurysm is common vascular complication amongst the intravenous drug addicts mainly due to sharing needles and multiple times usage, injecting insoluble salts into the vessels and poor hygiene. It is more common in developing poor countries having limited resources to combat such diseases. Inspite of large diversity in the treatment options, from intra-arterial thrombin injection to simple ligation of both proximal and distal femoral vessels and debridement of wound results are almost same ,as they depend on etiology of pseudoaneurysm, local conditions of the abscess and the general condition of the patients.

The time, the patient presents to us, multiple collateral circulations are developed across the pseudoaneurysm in most of the patients, so that the ligation at both ends of the vessels show acceptable results, regarding post operative amputation and intermittent claudication.

If the local condition of the wound and general condition of the patient favours, and distal circulation of the limb is critically compromised, revascularization with venous or synthetic graft should be considered through obturator or lateral clean planes of the thighs. In fact , in most of these patients veins are seldom saved due to repeated injection, and due to severely infective operative field the chances of synthetic arterial grafts infections are maximum.

In conclusion, ligation of both proximal and distal femoral vessels in pseudoaneurysm in intravenous drug addicts is the best treatment option.

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