ORIGINAL ARTICLE

Infected Pseudoaneurysm in Lower limb-Presentation, Management and Outcome

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ABSTRACT

Study Design; Prospective, Descriptive
Place and Duration; Surgical-3, Jinnah Hospital/Allama Iqbal Medical College, Lahore; from January 2007-December 2012.
Objectives: 1-To study the clinical presentation of infected pseudoaneurysm of lower limb in I. V drug abusers. 2-To evaluate the surgical treatment and its outcome.
Methods: Patients presenting with signs and symptoms of infected pseudoaneurysms in surgical -3 were studied. The diagnosis of the disease was made with history of intravenous drug abuse and clinical examinations. The parameters studied were demographic aspects, clinical presentation, investigations, surgical management, postoperative complications and follow up. The clinical data was saved in a computer Performa and was analyzed.
Results: Fifteen patients of infected aneurysm of lower limb were managed from January 2006 to December 2012. All were male and median age was 28 years. Ten patients had pseudoanurysm in left groin, two in right groin and one had in left popliteal fossa and two patients had aneurysm in both right and left groins and in polpliteal fossa. In 8 patients, reason of coming to hospital was hemorrhage, in 2 patients reason of admission was high grade fever, 4patient presented with an ulcerated, non healing pulsatile wound. One patient was brought by his family for the management of addiction. On examination, there was severe sepsis with abscess, necrosis and extensive cellulitis in 5 patients. Five patients had involvement of both common femoral and superficial femoral artery. In two patients common femoral artery was involved alone, two had popliteal artery involvement. In 6 patient involvements of femoral artery and external iliac vessels was noted. Proximal and distal ligation of the infected aneurysm with excision was done in all cases. In two patient reversed saphenous vein graft was attempted without success. No patient needed postoperative amputation in the recorded follow up. Five patients had postoperative follow up for 7 months, 3 patients for 2months without any complaint of intermittent claudication.
Conclusion: The infected pseudoaneurysm of lower limb is a life threatening illness of young male I.V drug abusers. Ligation and excision of infected pseudoaneurysm is a safe surgical management to save limb and life of the patient. Long term rigorous follow up is required to note delayed postoperative outcome.

Key words: Pseudoaneurysm; I.V drug abuse; Ligation/excision

INTRODUCTION

Addiction is becoming one the biggest medical and social problem of our society. The methods and materials being used for this purpose are alarming. Due to poor implementation of law by controlling authorities the problem is increasing day by day. Drug addicts gradually shift themselves from oral to parenteral addiction. Intravenous drug addicts present due to severe sepsis and vascular complications. The vascular complications include a range of clinical problem from simple to serious. 1The life threatening hemorrhage may lead to loss of limb or even loss of the life of the victim.2 Treatment of vascular complications is controversial and unsettled and varies from simple ligation and excision to immediate vascular reconstruction. Simple ligation and excision is the most frequently done procedure,3 and is considered to be safe and effective.4,5

METHODS

Patients of intravenous drug abuse presenting with infected aneurysm of lower limb from January 2006 to December 2012 were studied. All patients were male. History and clinical examination was done. At the time of admission, blood sample were taken for hemoglobin, total leukocyte count, differential leukocyte count, liver function tests,

serum urea and creatinine and viral markers for hepatitis B and C. Vitally stable patient had Doppler studies of limb.

Patients presenting with severe hemorrhage were operated in emergency after resuscitation. In stable patients operative work was done on elective operation list. At exploration proximal and distal vascular control was achieved and artery was ligated at healthy site with delayed absorbable suture. The infected aneurysm was excised and thorough debridement of the wound was done. Two patients had relatively less sepsis and aneurysms were small. In these patients effort was done to maintain and improve vascularisation with reversed saphenous vein graft. The graft route was extra anatomical in both patients. Postoperatively vascular status was assessed clinically and with Doppler studies.

RESULTS

There were fifteen patients in this prospective study. All were male with median age of 28 years. No patient was sure about the duration of I V drug abuse and always changed the statement on next visit. Majority of the patients (53%) presented with hemorrhage.

Picture 1: Showing two patients with pseudoaneurysm of femoral arteries.

Table 2: Hematological Laboratory Findings

Patient No	Hb%	Bilirubin	ALT	Anti-HCV	HBs	Urea/creatinine
1	7gm%	0.1mg%	36 u	Positive	Negative	Normal
2	10gm%	2mg%	77u	Positive	Positive	Normal
3	4gm%	1.2mg%	56u	Positive	Negative	Raised
4	8gm%	1.6mg%	11 u	Positive	Negative	Normal
5	6.5gm%	3mg%	166 u	Positive	Positive	Normal
6	11gm%	1mg%	45 u	Positive	Negative	Normal
7	7.8gm%	2.5mg%	67 u	Positive	Negative	Normal
8	9gm%	1.2 mg%	32 u	Positive	Negative	Normal
9	9.8gm%	0.9mg%	96 u	Positive	Negative	Normal
10	5gm%	0.1mg%	33 u	Positive	Positive	Raised
11	9gm%	3mg%	68 u	Positive	Negative	Normal
12	8gm%	4mg%	44 u	Positive	Negative	Normal
13	11gm%	1mg%	32 u	Positive	Negative	Normal
14	7gm%	2mg%	127 u	Positive	Positive	Normal
15	9gm%	2.5mg%	45 u	Positive	Negative	Normal

(TABLE-1) Two patients had complaint of high grade fever and on clinical examination black expansible lump with necrosis of adjacent skin and discharge of foul smelling pus was noticed. Out of eight patients presenting with hemorrhage, four patients were in hypovolemic shock. Only one

patient was brought in hospital by his family for the management of addiction and on clinical examination a pulsatile mass was noticed in his left groin. Four patients reported for the treatment of a non healing wound having blackish ulcerated surface. (Picture-1).All 15 patients were Anti-HCV positive and four had blood tests positive for hepatitis B surface antigen as well. (Table-2) Left groin was mostly involved because of easy approach for injection. Femoral vessel and external iliac arteries were the commonest blood vessels. (TABLE-3) Two patients had involvement of popliteal artery .

Almost all the patients had low hemoglobin and disturbed liver functions. (TABLE-2) Proximal and distal ligation of aneurysms was done in all cases along with drainage of abscess and debridement of necrotic tissue. Wounds were left open for repeat debridement and dressing. In two patients long reversed saphenous vein graft was attempted using extra anatomical route. Graft sloughed away in both patients. There was no immediate postoperative vascular compromise like claudication, digital gangrene, or rebleeding in any patient. Similarly in limited follow up period there were no complaints of intermittent claudication. There was no associated mortality.

Table 1: Presentation of Patients

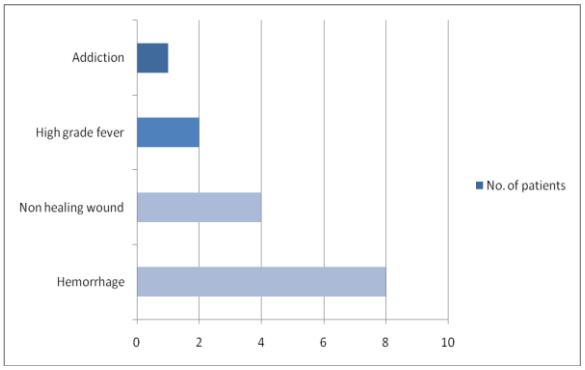
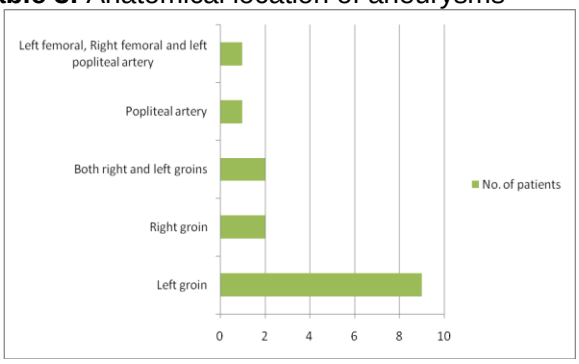


Table 3: Anatomical location of aneurysms



DISCUSSION

Drug abuse is becoming a big social and medical problem in our society. Surgeons have to care the physical complications of needle punctures like puncture site infections, phlebitis and infected pseudoaneurysm of punctured arteries. Pseudoaneurysm formation is a serious complication of intravenous drug abuse which can be threatening for limb survival and sometime even for the life of the patient. The disease is exclusively seen in males. Addicts are malnourished and due to septic needle pricks they remain in sepsis. In our study almost all patients had low hemoglobin and disturbed liver function tests. Similarly in Yoong and Cheong series of intravenous drug abusers up to 85% of patients had low hemoglobin.6 Patient initially uses easily approachable veins. After phlebitis and blockage of veins, patient starts puncturing his arteries. Like other series,7 Narcotic drugs like nalbuphin is the commonest drug for intravenous abuse in our society.

Septic needles cause sepsis, thrombosis and weakening of the arterial wall. Process of arterial occlusion is gradual and gives time for the development of collateral circulation. Patients are usually brought in hospital for the treatment of abscesses or bleeding. Sometime incision and drainage of such abscess is mistakenly done by less experienced doctor leading to profuse hemorrhage.8

Surgical treatment of pseudoaneurysms in intravenous drug abusers is controversial. Ideal treatment should be control of sepsis and excision of diseased portion of artery and revascularization of limb. But the condition of limb and patient is usually not satisfactory for revascularization operation. There is danger of sepsis in placing synthetic vascular grafts. Autogenous saphenous vein graft is either not available due previous needle pricks or is sloughed away due to sepsis. There is always fear of limb salvage in simple ligation/excision of aneurysm. None of our patient suffered any sort of vascular insufficiency immediately after ligation/excision operation. As a result of femoral artery ligation without reconstruction , well open collateral circulations and acceptable distal arterial runoff blood are seen, which suggests that procedure is reliable alternative to the treatment of infected femoral artery pseudoanerysm in drug addicts.9 Snapkota et al, 10 recommended non operative modalities like ultrasound guided compression repair,

endovascular placement of covered stents, ultrasound guided per cutaneous injection of thrombin in non infective pseudoaneurysm other than the pseudoaneurysm of intravenous drug abusers. Apparently Immediate grafting in infected aneurysm and can have better limb survival and the long term benefits in the form of lesser incidence of intermittent claudication, but majority of the authors did not agree this statement.4,5. Arterial reconstruction is very difficult due to contaminated field, non-availability of autologous vein graft and general condition of the patient. We attempted reverse saphenous vein graft in two patients in extra anatomical position. In both patient grafts sloughed away and re-exploration was done for hemostasis. Similar observations were made by Klonaris et al.11 Recently Hu et al 12, studied the hemodynamic changes after femoral artery ligation for the treatment of infected femoral artery pseudoaneurysm and reported well open collateral circulation and acceptable distal arterial runoff blood.

There was poor follow up. Maximum follow up period was 7 months. No patient had complaint of intermittent claudication. In fact no patient had active life after aneurysm surgery and majority of them were again indulged in drug abuse. Like other series 7,13 , there was no mortality.

CONCLUSION

Drug abuse is a serious medical and social problem. Ligation and excision of infected pseudoaneurysm in intravenous drug abuse is a safe surgical treatment. Long term follow up is required to record the delayed effects of ligation/excision operation.

REFERENCE

1- Behera A, Menakura SR, Jindal R. Vascular complications of I V drug abuse; An Indian experience. ANZ J Surg. 2003;73(12):1004-7
2- Salehian M T, Shahid N, Mohseni M, Ghodoosi I, Marashi S A, Fazal I.Treatment of infected pseudoaneurysm in I V drug abusers: Ligation or Reconstruction? Arch Iranian Med.2006; 9 (1)149-52
3- Salimi J,Shojaeefar A , Khashayar P. Manegement of infected pseudoaneurysm of femoral artery in intravenous drug abusers, a review of 57 cases. Arch Med Res. 2008;39(1)120-4
4- Cheng SW, Fok M, Wong J. Management of infected femoral aneurysm in intravenous drug abusers. Br J Surg.1992;79(6):510-2
5- Lashkarizadeha MR, Ashrafqanqui M. Surgical management of femoral artery pseudoaneurysms secondary to drug abuse. J Coll Physicians Surg Pak. 2011;21(11):672
6- Yoong KY, Cheong I. A study of Malasian addicts with human immunodeficiency virus infection. Int. J STD AIDS. 1997;8(2):118-23
7- Arora S, Weber MA, Fox CJ, Neville R, Lidor A, Sidway AN. Common femoral artery ligation and local debridement; A safe treatment for infected femoral artery pseudoaneurysm. J Vascular Surg. 2001;33(55):991-3
8- Cheema MA, Shafique A. Presentation and management of pseudoaneurysm of femoral artery. J Coll Physician Surg Pak.2005;15(3):162-4
9- Hu ZJ, Wang SM, Li XX, Huang XL. Tolerable hemodynamic changes after femoral ligation for the treatment of infected femoral artery pseudoanurysm. Ann Vas Surg. 2010;24(2):212-8
10- Sapkota R, Sapkota S, Thapa B Shrestha KR, Rajbhandari N, Shrestha UK. Management of Pseudoaneurysm in IV Drug users. J In Med.2011;33(3):8-11Patel KR, Semel L, Clauss RH,Routine revascularization with resection of infection femoral pseudoaneurysm substance abuse. J Vasc Surg; 8(3):321-8
11- Klonaris c, Katsargyris A.Papapetru A,Vourliotakis G, Tsiodras S,Georogpolous A, Bastounis E. Infected femoral artery pseudoaneurysm in drug addicts: the beneficial use of internal iliac artery for reconsruction. J Vasc Surg. 2007;45(3):498-504.
12- Hu ZJ, Wang SM, Li XX, Li SQ, Huang XL. Tolerable hemodynamic changes after femoral artery ligation for the treatment of infetcted femoral artery pseudoaneurysm. Ann Vasc Surg 2010;24(2):212-8
13- Tan KK, Chen K, Chia KH, Lee CW, Nalachandran S. Surgical treatment of infected pseudaneurysm in I V drug abuser. Single institution experience and a proposed algorithm. World J Surg.2009;33(9):183-5