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FEMORAL ARTERY PSEUDOANEURYSM;

EXTERNAL ILIAC ARTERY LIGATION AND LOCAL DEBRIDEMENT. A SAFE TREATMENT OPTION FOR INFECTED FEMORAL ARTERY PSEUDOANEURYSM IN INTRAVENOUS DRUG ABUSERS

Naveed Akhtar[1], Shafeq Ullah[2], Muhammad Sabir[3]

1. MBBS, FCPS (Surgery)
FCPS (Urology)
Associate Professor
Department of Surgery, Surgical Unit 1, Nishtar Medical University/ Hospital Multan.
2. MBBS, FCPS (Surgery)
Assistant Professor
Department of Surgery, Surgical Unit 1, Nishtar Medical University/ Hospital Multan.
3. MBBS, FCPS (Surgery)
Senior Registrar
Department of Surgery, Surgical Unit 1, Nishtar Medical University/ Hospital.

Correspondence Address:
Dr. Naveed Akhtar
Address: Ward No.4 Nishtar Hospital Multan.
drchnaveed@yahoo.com

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ABSTRACT… Introduction: "Mycotic aneurysms are defined as a localized, irreversible dilation of an artery due to destruction of the vessel wall by infection." Intravenous (IV) drug abuse is an increasing social and health problem. Repeated punctures under septic conditions along with needle sharing habits among IV drug abusers result in various vascular complications. In addition, patients who present with these complications frequently have viral infections, which are hazardous to healthcare workers. **Objectives:** With these existing controversies of optimal surgical management of infected femoral artery pseudo aneurysm, we reviewed our surgical technique used for their treatment and their clinical outcome, in a population of IV drug abusers of Rahim Yar Khan. **Study Design:** Retrospective, descriptive study. **Setting:** Sheikh Zayed Medical College/ Hospital Rahim Yar Khan. **Period:** 2 years from 1-1-2015 to 31-12-2016. **Material & Methods:** Total 10 patients were included in this study. All patients were managed and operated in emergency ward. In all the patients we performed first external iliac ligation and then excision of the sac and debridement of the wound. The protocol of this study has been approved by the ethical committee of the hospital. **Results:** In this 2 years study, 10 patients were managed. Mean age was 22.5 years and age range from 18-28 years. All patients were young males and belong to low socioeconomic status. The duration of IV drug abuse was 2-3 years. A self-injection was the commonest mode of injection. All the infected femoral pseudo aneurysms were on the right side. 5 patients were hepatitis C virus (HCV) +ve and 4 patients were hepatitis B surface antigen (HbsAg) positive. Only one patient was human immunodeficiency virus (HIV) positive. Five patients presented with oozing pulsating mass and 5 patients with infected pulsatile mass. Right leg was survived in all the patients. There was no amputation. **Conclusion:** Ligation of the external iliac artery first then excision and debridement of the infected femoral artery pseudo aneurysms seems to be a safe procedure in IV drug abusers with low morbidity and no mortality. There was no amputation of the limb.

Key words: External iliac artery, IV Drug abuse, Infected femoral artery pseudo-aneurysms, Mycotic aneurysm

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INTRODUCTION

Sir William Osler in 1851 described Mycotic aneurysms first time for aneurysms arising as a complication of endocarditis. As there is no apparent association between fungal disease and aneurysms, many surgeons use this terminology for any aneurysm, secondary to infection, regardless of its pathology.[1]

"Mycotic aneurysms are defined as a localized, irreversible dilation of an artery due to destruction of the vessel wall by infection."[2]

Now a days Intravenous (IV) drug abuse is increasing in our socity.[3] Repeated punctures under septic conditions and needle sharing habits among IV drug abusers leading to pseudo aneurysm formation.[4] All most all patients also has viral infections, which are not only hazardous to the patients' health but also to the healthcare worker.[5] Infected femoral artery pseudo aneurysm is the most common arterial complications in IV drug abusers.[6] These vascular complications are limb-threatening as well as life-threatening. These Infected femoral artery pseudo aneurysms poses a difficult management

problem to the surgeons.[7,8] Ligation and excision of infected femoral artery pseudo aneurysms with debridement is the procedure of choice in this difficult situation.[9,10] Intermittent claudication and occasionally amputation of the limb has to be done to save the life of the patient.[11] Therefore, some surgeons recommend revascularization using synthetic or autogenous vein grafts at the time of operation.[12,13]

Delayed revascularization can be done to prevent the intermittent claudication.[13,14] Ligation and excision of the infected femoral artery pseudo aneurysm and debridement without revascularization caries acceptable morbidity and very low rate of limb amputation.[15]

OBJECTIVES

With these existing controversies of optimal surgical management of infected femoral artery pseudo aneurysm, we reviewed our surgical technique used for their treatment and their clinical outcome in a population of IV drug abusers of Rahim Yar Khan District, Punjab, Pakistan. .

MATERIAL & METHODS

Study Design

Retrospective, descriptive study

Setting

Sheikh Zayed Medical College/ Hospital Rahim Yar Khan.

Duration of Study

2 years from 1-1-2015 to 31-12-3016.

Sample Size

10 patients.

Data Collection

Medical records of 10 consecutive patients who presented with infected femoral artery pseudo aneurysm due to IV drug abuse were reviewed. Data regarding demography, age, gender, period of IV drug abuse, site of injection, presentation, surgical management, and outcome was analyzed.

Procedure

Through transverse supra inguinal incision, we first expose the external iliac artery in the clean area. A clamping test of the external iliac artery (EIA) was performed after vessel isolation, during which the oxygen saturation of the blood at the big toe of the affected limb was monitored with a continuous pulse Oximetry. After confirmation of the viability of the limb, EIA was ligated. Then extensive debridement and ligation of the bleeding vessels in the wound was done. Loose stiches applied to the wound edges and dressing done. Appropriate antibiotic started before and after the procedure and continue in the ward with dressing.

RESULTS

In this 2 years study, 10 patients were managed. All patients were males. The mean age was 22.5 years and age range from 18-28 years. All patients were young and belong to low socioeconomic status. The duration of IV drug abuse was 2-3 years. A self injection was the commonest mode of injection. All the infected femoral pseudo aneurysms were on the right side. 5 patients were hepatitis C virus (HCV) positive and 4 patients were hepatitis B surface antigen (HbsAg) positive. Only one patient was human immunodeficiency virus (HIV) positive. Five patients presented with oozing pulsating mass and 5 patients with infected pulsatile mass. In all the patients we performed first external iliac ligation and then excision of the infected femoral artery pseudo aneurysms and debridement of the wound done. Right limb was survived in all the patients. There was no amputation.

DISCUSSION

“Mycotic aneurysm, defined as a localized, irreversible arterial dilation due to destruction of the vessel by infection”. Pathogenesis of infection includes bacteremic seedling of the arterial wall, septic emboli to the vasa vasorum, contiguous infective focus and trauma causing direct bacterial inoculation.[16] The cause of mycotic aneurysms is changing from endocarditis to arterial trauma in IV drug abusers.[17,18]

Pseudo aneurysm formation of the femoral artery

is the most common complication in IV drug abusers. The tendency to inject in the groin area is highest as compared to other sites. Patients usually presents late due to poor socioeconomic status.[19] Among the patients we have studied, the first site of approach for IV access in most of the cases was left cubital fossa. After the thrombosis of the veins in left arm, the site most affected was on the right groin due to easy self excess as in our study all the patients presented with infected pseudo neurysms on the right femoral artery. When venous access is impossible due to thrombosis of the veins they introduced drug by nonsterile techniques to artery for easy access leading to pseudo aneurysm formation.

In our study five patients (50%) presented with oozing pulsating mass and 5 patients (50%) with infected pulsatile mass. As IV drug abuses is more common in young male with low socioeconomic status. In our study mean age was 22.5 years and age range from 18-28 years. All patients were young males and belong to low socioeconomic status as most of the studies shows. Miran K[15] shows (average age 19.5 years and range from 17–24 years) which is comparable to our study.

The following imaging studies (ultrasound, duplex scan, and computed tomography, angiography or magnetic resonance angiography) can be used to diagnose mycotic aneurysms.[20] We could not carry out all these investigations because our patient were very ill and needed urgent life-saving intervention in emergency. The most common isolated organism in mycotic aneurysms is *Staphylococcus Aureus*.[21,22,23]

In our study 50% of the patients were HCV positive, HbsAg was positive in 40% of the patients. While only one patient was positive for HIV (AIDS) as most of the studies shows same findings.

Two surgical procedures are available for femoral artery pseudo aneurysms.

1. Proximal ligation of the external iliac artery with excision and debridement of infected pseudo aneurysms without revascularization.
2. Proximal control of femoral artery with extensive debridement of infected pseudo aneurysms and routine revascularization.

Principles of management include proximal and distal control of vessel, with wide debridement of all infected tissue and antibiotic therapy.[20] Revascularization can be done with an autogenous or synthetic graft.[12,25] Excision of pseudo aneurysm without arterial reconstruction has been reported by several authors as a good option. In a study by Arora et al simple arterial ligation without reconstruction was done without any associated amputation and only mild claudication.[10] Similar results are shown in our study. Reddy DJ carried out arterial ligation in 39 patients with two postoperative amputations.[24]

We performed ligation of external iliac artery first then excision of the infected femoral artery pseudo aneurysms and debridement of the infected tissue in all patients as standard procedure. All the patients have healthy limbs at the time of discharge because there was thrombosis of the femoral artery; collateral vessels are already developed to supply the blood of the effected limb. Three patients showed signs of claudication which were mild in nature and were not affecting patient's lifestyle.

CONCLUSION

Ligation of the external iliac artery first then excision and debridement of the infected femoral artery pseudo aneurysms seems to be a safe procedure in IV drug abusers with low morbidity and no mortality. There was no amputation of the limb.

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Good friends are like stars.
You don't always see them,
but you know they're always there.

– Unknown –

AUTHORSHIP AND CONTRIBUTION DECLARATION

Sr. #	Author-s Full Name	Contribution to the paper	Author=s Signature
1	Naveed Akhtar	Main author, surgeon and perform the procedure.	
2	Shafeq Ullah	Collect the data.	
3	Muhammad Sabir	Analysis of data, Review the literature.	