Anastomotic Femoral Aneurysms: Increase in Interval Between Primary Operation and Aneurysm Formation

N. Levi and T.V. Schroeder

Department of Vascular Surgery, Rigshospitalet, The National University Hospital, Blegdamsvej 9, Copenhagen 2100, Denmark

Objective: Anastomatic pseudoaneurysms continue to be a late complication of vascular surgery, particularly following prosthetic graft procedures. The purpose of this study was to investigate if a previously reported increase in interval between the original operation and the development of pseudoaneurysm was still valid.

Design: Retrospective study.

Material and Methods: We reviewed the records of 76 patients who presented with 90 femoral aneurysms. The median age was 69 years (range: 39–83). The commonest previous vascular surgery was aortofemoral bypass in 61 cases.

Results: The interval between the original operation and the repair of the pseudoaneurysms was 9 years (range 1 month to 26 years).

Conclusions: This study confirms the previously noted trend of an increasing time to aneurysm formation from 3 years before 1975, 5 years between 1976 and 1980, and 6 years between 1981 and 1990.

Introduction

The classic distinction first drawn by Antyllus in 250 AD, between the solitary, round false aneurysm beneath a scar in the groin, and the elongated, true aneurysm, a dilatation of the whole artery, is still valid although surgery has now replaced war wounds.¹

Anastomotic pseudoaneurysm continues to be a late complication of arterial reconstructive procedures.²,³

No evidence of a decreasing incidence of pseudoaneurysms has been documented despite the use of modern operative technique and improved graft and suture material.³,⁴ The incidence ranges from approximately 2 to 5%³,⁵-⁷ depending on length of follow-up, whether studied pro- or retrospectively, and whether an imaging modality was used systematically. Left untreated, these lesions may cause graft thrombosis, distal embolisation, or life-threatening rupture.³,⁸,⁹

The purpose of this study was to investigate if a previously reported increase in interval between the original operation and the development of pseudoaneurysm was true.⁵,¹⁰

Material and Methods

The case records of 76 patients who underwent 90 arterial reconstructive procedures for femoral pseudoaneurysms from January 1989 to June 1994 were identified in the prospective vascular database¹¹ and reviewed. Information recorded for each patient included age, gender, atherosclerotic risk factors (smoking, hypertension, diabetes mellitus), associated aneurysms, previous vascular surgery and interval between primary operation and false aneurysm formation, presenting symptoms (rupture, embolism, thrombosis, expansion and durations of symptoms), size of the aneurysms, modality of diagnosis, operative details, postoperative complications and result of operation. Operation for recurrence were not included in the total number of operations but are included under result of operation.

Results

A total of 76 patients (37 women, 39 men) underwent a total of 90 operations (14 patients had bilateral false femoral aneurysms). The median age was 69 years (range: 39–83). Seventy (91%) patients were smokers, 11 were hypertensive and two were diabetic. The most
frequent previous vascular surgery was a aortofemoral bypass in 61 cases, 14 had a femodistal bypass, 13 had a femoral thromboendarterectomy and two had an iliofemoral bypass. The interval between the primary operation and the operation for the false femoral aneurysm was 9.2 years (range: 1 month to 26 years). The most frequent presenting symptoms were an expanding swelling in the groin in 68 cases. Thirteen patients presented with thrombosis, four with rupture, five were asymptomatic and none had distal embolisation. The average duration of groin swelling was 8 months. The average size of the aneurysms (at operation) was 4.2 cm. The diagnosis was clinical in 62 cases, by ultrasonography in 16 cases, by angiography in 19 cases, by CT-scanning in three cases and at operation in nine cases. The most common surgical procedure was a prosthetic bypass from the proximal prosthesis to the profunda femoral artery in 36 cases, 27 had a prosthetic bypass from the proximal prosthesis to the common femoral artery, 10 had a prosthetic bypass from the proximal prosthesis to the superficial femoral artery and the superficial femoral artery, four had a prosthetic bypass from the proximal prosthesis to the superficial femoral artery, three had a simple arteriorrhaphy, three had a femoral-femoral cross over to the profunda artery and seven had various other procedures. Eight had a wound haematoma that needed surgical evacuation, three had a superficial wound infection, four had a lymphocele treated conservatively and four had a femoral nerve accidentally transected. The postoperative results were good in 60 patients (patients being asymptomatic), eight had claudication, three rest pain, two needed femoral amputation, two had recurrence (after 4 months and 4 years), and one ruptured. The average follow-up time was 11 months (range 1 week to 5 years).

Discussion

Most femoral anastomotic aneurysms appear to result from host vessel degeneration but other factors include infection, the use of woven Dacron graft and braided suture material and hypertension. In 1981 a collective analysis of reports totalling 486 patients with 585 false aneurysms by Satiani found that the mean interval between the primary operation and false aneurysm repair was 42 months. Before 1975, reports showed a mean interval of 36 months, 25 months and 48 months. The average mean interval for that period being 36 months. Between 1976 and 1980, reports showed a mean interval of 63 months, 5 months, 6 months, 65 months and 73 months. The average mean interval for that period being 61 months. Between 1981 and 1990, reports showed a mean interval of 92 months, 32 months, 78 months, 84 months, 72 months, 74 months, 74 months, 72 months, 75 months, 74 months. The average mean interval for that period being 73 months. The average mean interval for the different time periods was calculated by adding the mean intervals in the different reports to each other and then dividing the number reached by the number of reports in that time period. This is only an approximation because the number of patients is different in the various papers. However the same procedure was used in all three time periods and therefore it should not bias the overall result.

After 1990, we found in this study a mean interval of 9.2 years (111 months). When infection accompanies pseudoaneurysm, a significantly shorter interval (4.5 to 7.4 months) occurs between the original procedure and the development of a pseudoaneurysm. The diagnosis of anastomotic aneurysm is usually straightforward with a visible and palpable pulsating mass in the groin but this may be supplemented by ultrasound and arteriography which is vital to delineate distal vessel run-off especially if thrombosis has taken place. In our series however, nine classes were discovered at operation. Simple resuture of the prosthesis is now no longer an acceptable form of surgical management because a high incidence of recurrence has been reported and the use of an interposition graft is the treatment of choice. A technique using a percutaneous balloon catheter for inflow control has recently been reported.

References

Anastomotic Femoral Aneurysms


Accepted 29 June 1995