

## Surgical Treatment of Stent Restenosis after Long Segment Placement into the Superficial Femoral Artery

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### Abstract

Endovascular stent placement is taking place of the bypass surgery in patients with peripheral arterial disease, over the last decade. However, patency of the long segment stents, below knee disease, advanced age, absence of distal runoff, diabetes and chronic renal disease are still challenging. Surgical bypass for the superficial femoral artery occlusive disease to the below the knee stenosis by using autologous vein graft has still good results. Here we present a 55 year old male who had long segment superficial femoral artery atherosclerotic disease. He had a history of long segment endovascular stent placement. We extracted the restenotic stent and performed bypass with PTFE graft to the below the knee.

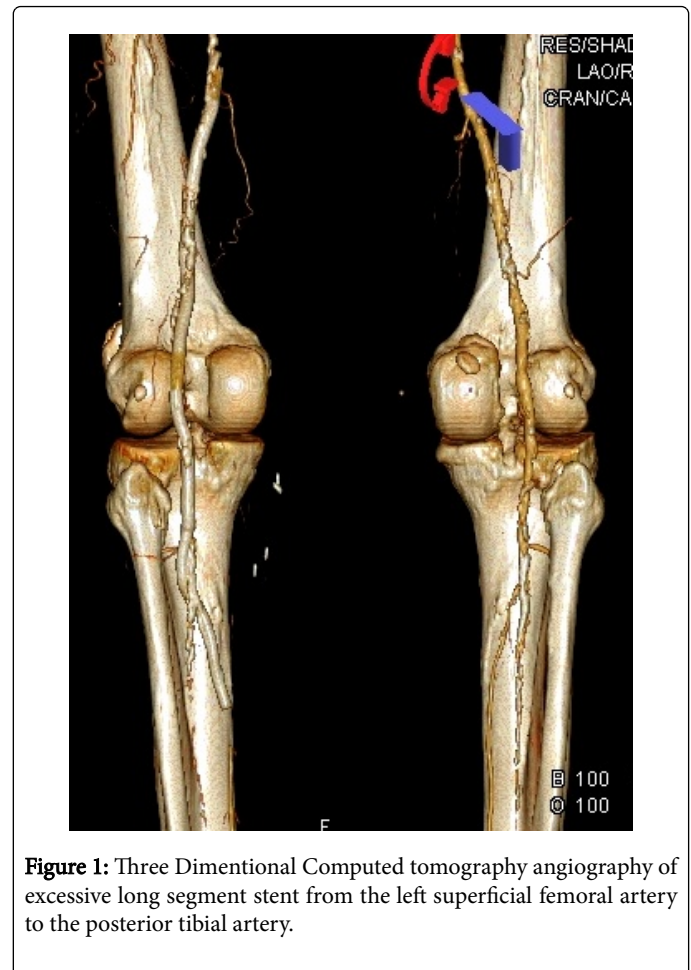
**Keywords:** Superficial femoral artery stenosis; Long segment; Stent; Treatment

### Introduction

Endovascular stent placement has an important role for the treatment of the patients with peripheral arterial disease especially with the superficial femoral artery occlusive disease, in recent years. For this reason, there has been a rapid rise in the number of endovascular procedures [1]. There are many varieties of stents such as balloon or self-expanding, covered, drug-eluting and biodegradable. However, treatment of excessive long segment superficial femoral artery stenosis is still controversial and reduces the patency [2]. Stents are more prone to external compression especially during flexion of the hip and the knee. Thrombosis, implantation technique, intimal dissection, negative remodeling, intimal hyperplasia, stent fracture are reducing the success rate of the stent placement. Surgical bypass for the superficial femoral artery occlusive disease with below the knee stenosis by using autologous vein graft has still good results [3].

### Case Report

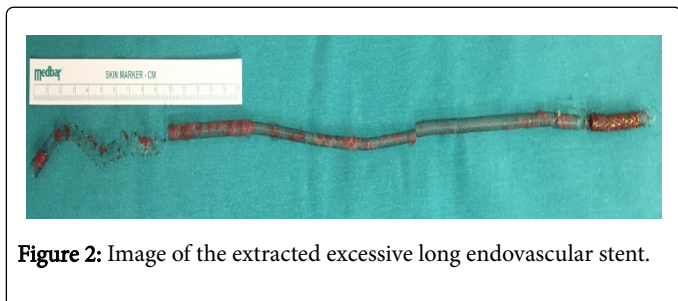
A 55-year-old male was presented with wound on his left foot, was admitted to us. He had a history of calf claudication, hypertension, diabetes mellitus, coronary artery bypass grafting surgery, femoro-popliteal bypass grafting surgery and percutaneous stent placement 1 year ago. On admission his blood pressure was 120/80 mm Hg and his heart rate was 72 beats/min. The remainder of the physical examination was unremarkable except blood creatinine and glucose levels. On physical examination his left limb pulses were absent except femoral artery pulse and wound on his left foot. A computed tomography angiography scan was performed which revealed total occlusion of the left superficial femoral artery, occlusion of the previously placed stent and total occlusion of the graft (Figure 1).



**Figure 1:** Three Dimensional Computed tomography angiography of excessive long segment stent from the left superficial femoral artery to the posterior tibial artery.

We decide to perform surgical bypass from common femoral artery to the proximal popliteal artery and to the posterior tibial artery.

Routine preparation for surgery was made and informed consent was taken. After exploration, arteriotomy was performed to the popliteal artery above and below the knee. Previously placed 30 cm long stent which extends to the posterior tibial artery was completely extracted and extensive endarterectomy was performed (Figure 2).



**Figure 2:** Image of the extracted excessive long endovascular stent.

Bypass was performed between the common femoral artery and the above and below the knee popliteal artery and to the posterior tibial artery with 8 mm PTFE graft due to lack of saphenous vein graft. The post-operative course was uneventful. The patient was discharged with oral klopidogrel and acetylsalicylic acid on post-operative [4]. day with palpable distal pulses. Six months later he was doing well with stable vital signs and no ischemia on follow up.

## Discussion and Conclusion

Long segment stenosis, small diameter of the stent, metal composition, thrombogenicity and rigidity of the stent negatively affect the patency and may promote myointimal hyperplasia, restenosis and thrombosis [4,5]. Myointimal hyperplasia usually occurs in the transition zone between stent and the artery. Endovascular stent replacement has better results for treating short stenoses rather than long stenosis. Sizing is important before placing the stents. Excessive ballooning may lead to arterial trauma, intimal hyperplasia and stent restenosis. The ideal stent should resist to external compression. Endovascular radiotherapy, drug-eluting stents, biodegradable stents,

covered stents (may cover the side branches) reduce the restenosis rates. TASC II guidelines indicate that endovascular therapy can be considered for lesions up to 15 cm [2]. 1 year patency rates of short segment (<10 cm) stenting vary between 50% and 81% [6]. However, one year patency of long-segment (>10 cm) stenting rate are between 20% and 69%. Surgical bypass with using autologous saphenous vein graft is still considered as the gold standard therapy for below the knee stenosis and 5-year limb salvage rate is 80% [7]. In conclusion, the indication for endovascular therapy has been advanced, however open repair of below knee stenosis is still considered as the treatment of choice.

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