

Short Communication

Common Femoral Thromboendarterectomy and Profundaplasty: A Single Center Experience

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Submitted: 25 October 2018

Accepted: 12 November 2018

Published: 13 November 2018

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Keywords

- Peripheral arterial disease
- Common femoral artery
- Thromboendarterectomy
- Profundaplasty

Abstract

Endovascular repair has become widespread in the treatment of aortoiliac and femoropopliteal disease, however, in common femoral artery (CFA) disease it remains unclear whether endovascular repair is preferred to open common femoral artery endarterectomy. We report a review of 101 patients who underwent unilateral or bilateral common femoral endarterectomies and/or profundaplasties at our institution. Thirty-day operative mortality was 5%. Complications observed included bleeding (3%), pneumonia (3%), deep wound infection (8%), sepsis (3%), stroke (3%) and myocardial infarction (2%). Our patient cohort demonstrates encouraging short and medium-term outcomes in a high-risk patient population.

INTRODUCTION

Endovascular repair has become widespread in the treatment of aortoiliac and femoropopliteal disease, with high rates of success and low rates of complications and mortality [1,2]. However, in common femoral artery (CFA) disease it remains unclear whether endovascular repair is preferred to open common femoral artery endarterectomy. Surgeons have historically been deterred from pursuing endovascular repair of CFA sessions due to the risk of stent fracture in a highly mobile area and the possibility of compromising future surgical options [3,4]. There are a limited number of studies in the literature that compare CFA endovascular repair and open endarterectomy [3,5]. By reviewing this case series in high-risk patient population, we aim to contribute to the body of reported short and medium term outcomes of open CFA endarterectomy which is valuable in evaluating emerging minimally-invasive surgical techniques.

METHODS

A retrospective chart review included 101 patients who underwent unilateral or bilateral common femoral endarterectomies and/or profundaplasties between November 2011 and March 2015. Common femoral thromboendarterectomy was performed either in isolation, or with concomitant inflow, outflow, or combination of both inflow and outflow procedures. Operations were performed by multiple surgeons according to their routine technique, with or without patch angioplasty. The type of anesthesia varied by provider choice, but the majority were performed under general anesthesia. No specific heparin protocol was followed. Postoperative clinic follow-up ranged from 3 months to 2 years. Preoperative, perioperative, and

postoperative characteristics were analyzed. Institutional review board approval was obtained for this retrospective study.

RESULTS

The average age was 65 years old, and there were 64 men and 37 women. 95 patients identified as Caucasian, 4 African-American, and 2 were not recorded. The average weight was 74.1 kg, and the average BMI was 25.2. Three indications for surgery were reported and included, 74 patients with symptoms including claudication, 63 patients with pain at rest, and 33 patients with ulceration of the limb.

The prevalence of nine preoperative comorbidities were reviewed, including diabetes mellitus (38%), hypertension (90%), hyperlipidemia (81%), chronic kidney disease (7%), coronary artery disease (61%), history of myocardial infarction (23%), congestive heart failure (11%), chronic obstructive pulmonary disease (COPD) (41%), and history of tobacco smoking (91%). Prior surgical history including coronary artery bypass grafting (18%), history of a prior vascular surgery (62%) and previous groin surgery (46%) was also included in analysis. Preoperative medications included beta-blockers (65%), ACE inhibitors (43%), calcium channel blockers (25%), aspirin (65%), statin (61%), clopidogrel (35%), nitrates (22%) and insulin (16%).

All patients received appropriate perioperative prophylactic antibiotics per standard surgical protocol. General anesthesia was performed in 99 procedures while the other 2 patients underwent monitored anesthesia care with sedation. Common femoral thromboendarterectomy was performed an isolation (17%), with concomitant inflow (26%), outflow (27%), or combination of both inflow and outflow procedures (31%). A

patch angioplasty was performed in 70 operations, including saphenous vein (37%), bovine pericardial (26%), superficial femoral artery (19%), Gore-tex (11%), Core Matrix (3%), Dacron (3%), and fluoropassiv (1%). Drains were placed in 4 patients, and 2 patients underwent placement of a wound vac.

Postoperative outcomes were also analyzed. Thirty-day operative mortality was 5%. Complications observed included bleeding (3%), pneumonia (3%), deep wound infection (8%), sepsis (3%), stroke (3%) and myocardial infarction (2%). Re-intervention was required in 31% of patients, including 17% who required amputation of any variety. Postoperative readmission rate after initial hospital discharge was 33%, of which 71% required re-intervention.

DISCUSSION

Reported preoperative patient characteristics were similar to those detailed in other relevant reviews of common femoral thromboendarterectomy [5-9]. In this study, average age was 65 years old and approximately two thirds of the patients were male. The average patient was slightly overweight (BMI 25.2). Disease progression prior to operative intervention varied, with 74% of patients reporting symptoms including claudication, while one third of patients had progressed to ulceration of the affected limb. The severity of limb ischemia and progression of disease is a reflection of the underserved population in our service area, and is comparable or slightly worse than other reported studies.^[6-8] All patients undergoing common femoral endarterectomy and/or profundaplasty were included in this study, and there were no exclusions based on preoperative characteristics.

Common patient comorbidities in this cohort included hypertension, hyperlipidemia, diabetes, coronary artery disease, COPD, and tobacco use. The prevalence of a history of tobacco use (91%) and COPD (41%) in this patient cohort is substantially higher than published in similar reviews [6-8], which likely increases the incidence of postoperative pulmonary complications. Complications observed in this study included bleeding (3%), pneumonia (3%), deep wound infection (8%), sepsis (3%), stroke (3%) and myocardial infarction (2%). The rate of deep wound infection is similar to those reported in the literature [6]. Thirty-day operative mortality in this study was 5%. A review of 1843 patients included in the National Surgical Quality Improvement Program (NSQIP) database by Nguyen et al. reported a 30-day operative mortality of 3.4%, and found six statistically significant predictors of increased mortality including age, non-independent status, dialysis, sepsis, emergency status, and American Society of Anesthesiologist Physical Status Classification (ASA) class 4 or 5 [6].

Long-term outcomes including patient survival and limb salvage were not investigated in this study. Postoperative clinic follow-up ranged from 3 months to 2 years. However, other studies have demonstrated excellent long-term outcomes after common femoral artery thromboendarterectomy. Wieker et al., reviewed 655 patients undergoing common femoral artery

thromboendarterectomy and reported a primary patency of 96.5%, 93.2%, 90.2%, and 82.5% at 1, 2, 3, and 5 years, respectively [10]. In another study, Ballotta et al., enrolled 117 patients undergoing common femoral artery endarterectomy and published excellent 7-year survival, primary patency, and freedom from new revascularization, which were 79%, 96%, and 80%, respectively [7]. Open surgical endarterectomy at the common femoral artery and femoral bifurcation has shown excellent long-term outcomes in the limited number of studies published in the literature.

CONCLUSION

The practice of endovascular repair of common femoral artery disease has been gaining interest as concerns for stent fracture and limiting future surgical interventions have decreased. However, open common femoral thromboendarterectomy remains a viable option with excellent survival, primary patency, and freedom from repeat revascularization. Our patient cohort demonstrates encouraging short and medium term outcomes in a high risk patient population.

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Cite this article

Gunn TM, Lippert K, Dugan AJ, Saha SP (2018) Common Femoral Thromboendarterectomy and Profundaplasty: A Single Center Experience. *J Cardiol Clin Res* 6(4): 1143.