



Internal iliac artery patency after iliac branched device in treatment of iliac artery aneurysms

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Article History: Received: 01.06.2023

Revised: 05.07.2023

Accepted: 08.07.2023

ABSTRACT:

Most of the recent data lack the long-term outcome of using iliac branched devices in iliac artery aneurysms with early promising results in terms of technical and clinical success. We aim in this study to look at patency of internal iliac artery after iliac branched device used to treat iliac artery aneurysms.

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Introduction

Presence of adequate distal sealing landing zone in the common iliac artery is mandatory for successful endovascular treatment of iliac artery aneurysms. ⁽¹⁾

Coverage of hypogastric artery is associated with known complications which can be avoided with several techniques ⁽²⁾.

Several methods have been introduced to treat iliac artery aneurysms while preserving the hypogastric circulation. Using iliac branched device to keep internal iliac arteries perfused and exclude common iliac and internal iliac artery aneurysms is supposed to achieve the desired outcome. ^(3,4)

Most of the recent data lack the long-term outcome of using iliac branched devices in iliac artery aneurysms with early promising results in terms of technical and clinical success. ⁽⁵⁾

We aim in this study to look at patency of internal iliac artery after iliac branched device used to treat iliac artery aneurysms.

Methodology

The study is a retrospective study conducted at department of vascular surgery in the Royal Free Hospital during the year from September 2019 to September 2020.

All patients undergoing EVAR or Fenestrated EVAR with iliac artery aneurysms and patients with isolated iliac artery aneurysms who had treated with iliac branched device were included in this study.

All patients were treated according to instructions for use (IFU) of iliac branched device with a mean iliac diameter of 3.58 cm.

Patients were discussed in our vascular Multidisciplinary team meeting (MDT) and all patients had Computered Topography Angiogram (CTA) to plan the measurements and choose the accurate stent diameters.

All patients were generally anaesthetized with bilateral femoral surgical cutdown and perform the procedure as usual.

We determined technical success of the procedure, patency of internal iliac artery and 30 days mortality as our primary endpoint.

Our secondary endpoint was the clinical success at follow up periods.

Patients stayed in recovery for 6 hours then discharged to the ward to be monitored till their planned discharge date. Follow up CT scan was done at one month interval followed by serial

follow up appointments at the clinic at 3, 6 and 12 months.

Results

10 male patients and one female patient were included in the study with 2 patients had both of their iliac arteries treated with IBD making a total number of 13 limbs included in our study with a

Table 1: post operative complications during Follow up.

Complications	IBD
IB endoleak	0
Occluded IIA	1
Buttock claudication	0
Ischemic colitis	0

Two patients were included for IBD treatment had their procedure modified intraoperatively, as the internal iliac artery on both was not successfully cannulated; one had his internal iliac artery coiled

mean common iliac artery diameter of 4 cm and a mean age of 69 and no detected significant findings in demographic data.

As shown in table 1, one patient was complicated with occluded internal iliac artery limb who was treated conservatively with no pelvic ischemic symptoms detected during the period of follow up.

and the limb was extended to the external iliac artery, and the other one the limb was flared at the iliac bifurcation. Both were not included in our study.

Table 2: primary patency during follow up

Follow Up	Primary Patency
9 months	77%
24 months	77%

During follow up time, the primary patency of internal iliac artery was 77% at 9 and 24 months. This was shown in table 2 suggesting good mid-term results of iliac branched device in treating iliac artery aneurysms.

Discussion

Preserving pelvic circulation during endovascular treatment of iliac and aorto-iliac aneurysms is responsible of 40% decrease in the rate of pelvic ischemic complications which happen after acute unilateral internal iliac artery occlusion⁽⁶⁾.

More recently, lots of studies started publishing about iliac branched device benefits in preserving pelvic circulation with not many trials presenting the long-term results. However, most of literature suggest good short and midterm results.⁽⁷⁾

In our study, we followed up our patients for 24 months with good technical success results and primary patency of 90% confirming data published in literature. As most of recent literature, internal iliac artery occlusion occurs at 30 days, after that internal iliac artery remains patent with good pelvic circulation. In the only patient who had internal iliac artery occluded, there was no ischemic complications as the pelvis was perfused by the contralateral hypogastric side.

Authors from reported literatures an actuarial hypogastric artery patency rate of 81%, freedom from iliac related endoleak rate of 83%, and freedom from any endoleak of 76% at 109 months. Most re-interventions occurred within the first 18 months, with an overall freedom rate of 83%.

Nevertheless, only a few patients reached the longer follow-up time.⁽⁸⁾

It is also imperative to mention the importance of learning curve in such endovascular procedures. Accurate patient selection together with anatomic and radiological measurements will lead to both technical and clinical success.

Conclusion

Iliac branched device is associated with satisfactory internal iliac artery patency and freedom from pelvic ischemia provided that accurate preoperative planning with good intra-operative clinical and operative experience are achieved.

Also, internal iliac artery patency is crucial to avoid ischemic manifestations of pelvis, and using iliac branched device in treatment of iliac artery aneurysms can help in maintaining perfused pelvic circulation.

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