Covered Versus Bare Metal Stents in Treatment of Primary Common Iliac Disease

Original Article

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ABSTRACT

Background: Endovascular therapy is the preferred approach for mild-to-moderate common iliac artery (CIA) occlusive disease. Although primary stenting is a treatment option, few studies compare covered and bare metal stenting regarding short- and long-term patency.

Objective: This study compares the outcomes of covered vs. bare metal stents (BMS) in CIA occlusive lesions.

Methods: In this prospective cohort study (November 2022–June 2024), 40 patients with CIA occlusive disease received either BMS (n= 20) or covered stents (CS) (n= 20). Data were collected prospectively. The primary outcome was primary patency, while secondary outcomes included major amputations, assisted primary patency, secondary patency, major adverse limb events requiring hospitalization and death.

Results: The mean ages for CS and BMS groups were 59.5±6.6 and 58.2±8.6 years, respectively (p= 0.608). Lesion classifications (TASC II B, C, D: 35%, 55%, 10% for CS vs. 40%, 45%, 15% for BMS, p= 0.828) and GLASS classifications (A1, A2: 55%, 45% for CS vs. 65%, 35% for BMS, p= 0.50) were similar. Lesion lengths (short: 50% CS vs. 55% BMS; intermediate: 40% CS vs. 35% BMS; long: 10% in both, p= 0.999) were evenly distributed. Major adverse limb events and complications were less frequent with CS but not statistically significant. Primary patency at one month was 100% for both groups, with sustained patency favoring CS at 6 months (100% vs. 90%, p= 0.487) and 18 months (90% vs. 75%, p= 0.407).

Conclusion: Both stent types are technically feasible and yield acceptable outcomes. CS shows higher primary patency rates at 6 and 18 months compared to BMS.

Key Words: Bare metal stents, common iliac artery disease, covered stents.

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INTRODUCTION

Estimates of the prevalence of aortoiliac occlusive disease (AIOD) in the general population range from 3.56% to more than 14%. With estimates of 14%–20% for those 70 years of age and beyond and 23% for people 80 years of age and older, some studies indicate a higher frequency in older populations[1]. Chronic limb-threatening ischaemia and intermittent claudication are linked to AIOD, which can result in complications such infection, amputation, and death[2].

Despite the higher risks of early morbidity, death and the increased use of hospital resources, the Trans-Atlantic Inter-Society Consensus Classification (TASC) II guidelines support open surgical treatment for TASC D (and select TASC C) lesions[3]. According to its (2017) Appropriate Use Criteria, the American College of Radiology recommended an endovascular-first strategy, irrespective of the TASC classification, due to the reduced variability in outcomes observed across different lesion types[4].

Treatment paradigms have changed significantly over the last 20 years, with endovascular methods now being the go to choose for treating mild-to-moderate AIOD[4]. Therefore, endovascular techniques are usually used for AIOD therapy in modern practice in skilled vascular centers[5].

It is now a standard practice to treat complex aorto-iliac lesions with a stent following angioplasty[6]. While primary stenting yields excellent immediate results and procedural success for shorter lesions, it faces challenges with diffuse, heavily calcified, and occlusive lesions, which can lead to technical failures. Additionally, stenting has shown lower long-term primary patency rates compared to surgical bypass for TASC C/D lesions[7].

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AIOD is treated with two types of stents: covered and bare metal stents (BMS), which can be self-expandable or balloon-mounted. BMS failure is often due to tissue-metal interaction, atheroma prolapse, and restenosis[8]. Covered stents, coated with poly-tetra fluoro-ethylene (PTFE), prevent direct metal contact, reducing restenosis. They also offer mechanical and biochemical strategies, like drug-coated devices, to minimize in-stent stenosis[9]. While self-expandable stents could be better for external iliac arteries, covered stents might be better for complicated lesions, especially those involving the aortic bifurcation and common iliac artery. In the past, only iliac aneurysms, arterio-venous fistulas, and iatrogenic perforations and ruptures were treated with covered stents[10].

Balloon-expandable (BX) covered stents offer the benefits of coverage along with strong radial support and precise insertion, making them a potential alternative to bare metal stents (BMS) for iliac artery treatment[11]. The Covered vs. Balloon Expandable Stent Trial (COBEST) showed that, both in the short term (18 months) and long term (5 years), the covered stent consistently offered better patency than the bare metal stent. Patients with TASC C and D lesions who were treated with covered stents experienced a significant improvement in 5-year primary patency, increasing from 50% to 95% after 18 months. Additionally, those treated with covered stents required fewer revascularization procedures compared to those with bare metal stents. However, the type of stent did not affect the rate of major limb amputations. For TASC B lesions, the outcomes were similar for both bare metal stents and balloon-expandable covered stents[12].

Currently, there are limited prospective randomized cohort studies assessing the outcomes of primary stenting for iliac lesions in the Egyptian population, particularly concerning the TASC II classification. This study aims to compare the long-term benefits and outcomes of covered stents versus bare metal stents in the treatment of iliac lesions.

PATIENTS AND METHODS

This prospective cohort research was carried out in a tertiary care center from November 2022 to June 2024 after receiving clearance from the ethics committee and signed consent from the participants. Forty individuals with CIA lesions, categorized using the TASC II criteria, were included in the research.

Inclusion Criteria:

Patients with CIA disease classified as GLASS I or II A (non-significant CFA disease) and those with CIA categorized under TASC II B, C, and D.

Exclusion Criteria:

Patients with CIA classified as GLASS B (significant CFA disease) necessitating endarterectomy or endovascular management; those categorized as TASC II A; pregnant and lactating women; individuals with a life expectancy of less than two years due to malignancy; those with an allergy or contraindication to contrast media (GFR <30ml/min/1.73m^2); and patients with contraindications to antiplatelet medications such as aspirin and clopidogrel.

Sampling Method:

Simple randomization.

Sample Size:

Forty patients.

Study Procedures:

All participants underwent the following assessments:

Pre-operative Assessment:

Included Ankle Brachial Pressure Index (ABPI) measurements, medical history, and risk factors such as smoking, hypertension, diabetes, dyslipidemia, chronic lung and kidney diseases, cardiovascular disease, and functional impairment. Additionally, presenting complaints and a Wound, Ischemia, and Foot Infection (WIFI) score were recorded.

Pre-operative Investigations:

Pre-procedural laboratory tests included complete blood count, liver and renal function tests, coagulation profile. Radiological evaluation was case-specific and included options such as computed tomography angiography (CTA), Duplex ultrasound (DUS), Magnetic Resonance Angiography (MRA), or Digital Subtraction Angiography (DSA).

Patient Counseling and Consent:

Before Intervention, patients received a detailed explanation of available endovascular procedures and potential post-operative complications. Operative details were discussed to ensure understanding of outcomes, risks, and benefits.

Study Techniques:

All endovascular procedures were performed under local anesthesia, with sedation required for only five patients. Vascular access was achieved via retrograde ipsilateral (27 patients), antegrade trans-brachial (11 patients), or crossover techniques (2 patients). A suitable sheath (6, 7, 8 French) was inserted under ultrasound guidance, followed by the administration of 5,000 units of heparin. Angiography was then conducted to assess the CIA lesion accurately. A transluminal hydrophilic wire (Boston hydrophilic zipwire®) was advanced through the lesion in 21 patients with the assistance of a support catheter (EV3 TrailBlazer®) or Bern catheter in instances where arterial occlusion was present, subintimal recanalization was pursued in 19 patients. In all cases we did Pre-dilation with 6 mm balloon prior to insertion of stent such as (Medtronic Admiral Xtreme® PTA, Boston

Scientific Mustang PTA®). The decision regarding the use of CSs versus BMSs was made on a simple randomization. The CSs that were used included Bently Be graft®,Advanta V12 Atrium®, and Bard Lifestream® while the BMSs were utilized included Medtronic Visi-pro®, Boston Express LD®, Medtronic EverFlex®, and Abbott Omnilink Elite®. Both CSs and BMSs had post-stenting routine dilatation and were 10% to 20% larger than the original treated artery. All patients were prescribed a statin for life after the intervention, along with dual antiplatelet therapy (DAPT) consisting of acetylsalicylic acid at 80mg once daily and clopidogrel at 75mg once daily for one month. After that, they were switched to single antiplatelet therapy for an indefinite period of time. Bidirectional angiography was used to confirm the technical success. After the surgery, we recorded the duplex ultrasonography (DUS) and the ankle-brachial pressure index (ABPI). Effective vascular access and successful endovascular treatment completion, with less than 30% residual diameter reduction of the treated lesion following completion of angiography, were considered technical successes. Symptom recurrence, in-stent restenosis, Doppler ultrasonography results indicating artery stenosis, or clinical signs of procedural failure. Angiography or computed tomography angiography was used to confirm the lack of patency. The Society for Vascular Surgery (SVS) criteria were followed in defining primary and secondary patency measurements and limb salvage rates. Outcome evaluations only considered significant amputations, which were defined as happening at the ankle level or closer. At intervals of 1, 6, 12, and 18 months, follow-up evaluations were carried out using duplex ultrasonography, ABI measures, and assessments of patency (primary, aided primary, and secondary), significant adverse limb events, and hospital stay.

Follow-Up:

Symptoms, An ABPI and an iliac arterial DUS were used to clinically evaluate the patients at 1, 6, 12, and 18 months. A computed tomography angiogram (CTA), digital subtraction angiography (DSA), or both were conducted in accordance with a predetermined methodology to determine if the primary endpoint had been reached in situations where DUS scans produced unclear findings.

Primary patency, which is achieved without the need for secondary or further surgical or endovascular operations, or the time between the first intervention and any intervention intended to preserve or restore patency, was identified as the primary outcome. As long as the initial treated site has not been occluded, assisted primary patency is defined as endovascular intervention patency attained with the use of further or secondary surgical or endovascular operations. secondary patency was described as patency achieved following occlusion by the use of a second or extra surgical or endovascular treatment[13].

Clinical endpoints:

Included death, and serious adverse clinical events that led to hospitalisation or the prolongation of it, as well as major amputations.

Ethical considerations:

Anonymised patient data was used. Patient anonymity was maintained by classifying the data according to diagnosis rather than by association with the patient's identity. All participants gave their informed consent, which was recorded in Arabic and included confirmation of the time and date. By giving the patients' initials a number code that only the researcher knew, confidentiality was maintained.

Statistical analysis:

The data were analyzed using IBM SPSS Statistics (version 28.0). The Shapiro-Wilk test assessed the normality of the quantitative data, which were reported as mean±standard deviation and range. Comparisons were made using the independent *t*-test for continuous data, and the Chi-square and Fisher's exact tests for categorical data, presented as counts and percentages. A p-value of ≤ 0.050 was considered significant, while values above this were considered non-significant.

RESULTS

Forty patients in all were enlisted. Twenty patients were randomized to CS group (1) and twenty patients to BMS group (2) using simple randomization. Over the course of 18 months, patients were evaluated at prearranged intervals.

The mean age of patients treated with CS was 59.5±6.6 years, whereas the mean age of patients treated with BMS was 58.2±8.6 years (p= 0.608). In the BMS group, 18 patients (90%) were male, while 15 patients (75%) were male in the CS group (p= 0.407).

Comorbidities such as smoking, hypertension, diabetes mellitus, dyslipidemia, chronic lung disease, cardiovascular disease, chronic kidney disease, were compared across the groups under study. Age, sex, and comorbidities did not show any statistically significant relationships, as seen in Table (1).

According to the Rutherford categorization of clinical presentation, our results show that the groups under study do not differ statistically significantly.

The groups with TASC II B, C, and D lesions showed comparable lesion classifications with respect to the anatomical categorization (p= 0.828). Furthermore, similar distributions across the groups were seen for GLASS classes A1 and A2 (p= 0.50). Additionally, the distribution of lesion lengths was uniform (p= 0.999). These results suggest that there are no anatomical differences between the groups under study that are statistically significant.

There was no discernible difference in wound extension between the groups under study, according to the wound criteria shown in Table (2) (p= 0.738).

Regarding the Ankle-Brachial Index (ABI) between the studied groups, the ABI at follow-up intervals was non-significantly higher in the covered stent group.

As regard Doppler Ultrasound (DUS), our results imply that during the 12-month and 18-month follow-ups, DUS patency was non-significantly more common in the covered group.

Regarding main patency and technical success, as shown in Table (3), and (Figures 1,2,3) as regard covered stents, (Figures 4, 5) as regard bare metal stents and follow up in Figure (6). our results show that covered group had a non-significantly higher prevalence of primary patency at 6 and 18 months.

About the medical adverse clinical occurrences, such as deep vein thrombosis (DVT), transient ischemic attack (TIA), and myocardial infarction (MI). At months 6, 12, and 18, the frequency of such episodes was non-significantly reduced in the covered group.

Concerning hospitalization, the occurrence was non-significantly reduced in the covered group at all follow-up intervals.

With respect to complications and prognosis, occurrences of hematoma (p= 0.999) and restenosis (p= 0.480) were non-significantly less frequent in the covered group. We didn't have thrombosis, dissection, distal embolization, rupture, pseudo aneurysm, infection and deaths.

In terms of technical success and limb salvage, as shown in Table (4) there were no statistically significant differences observed between the groups under study regarding limb salvage and technical success.

Table 1: Demographic characteristics and comorbidities between the studied groups:

Variables		Covered (Total= 20)	BMS (Total= 20)	*p*-value
Age (years)	Mean±SD	59.5±6.6	58.2±8.6	^0.608
	Range	45.0–70.0	45.0–77.0	
Sex	Male	15(75%)	18(90%)	§0.407
	Female	5(25%)	2(10%)	
Smoking	Current	16(80%)	13(65%)	§0.468
	Ex	2(10%)	2(10%)	
	Never	2(10%)	5(25%)	
Hypertension		18(90%)	15(75%)	§0.407
Diabetes mellitus		14(70%)	13(65%)	#0.736
Dyslipidemia		19(95%)	17(85%)	§0.605
Chronic kidney disease		1(5%)	3(15%)	§0.605
Chronic lung disease		10(50%)	8(40%)	#0.525
Cardiovascular disease		9(45%)	12(60%)	#0.342
Functional impairment		9(45%)	12(60%)	#0.342

^: Independent t-test; #: Chi square test; §: Fisher's Exact test.

Table 2: Wound criteria between the studied groups:

Variables		Covered (Total=20)	BMS (Total=20)	*p*-value
Wound	(0) No ulcer	15(75%)	15(75%)	§0.738
	(1) Small or superficial without gangrene	1(5%)	0	
	(2) Deep, not extensive (limited to digits)	1(5%)	4(20%)	
	(3) Deep, extensive (forefoot, midfoot±claceneal involvement)	2(10%)	1(5%)	
Ischemia	(0) ABI > 0.80	0	0	§0.999
	(1) ABI 0.60-0.79	4(20%)	5(25%)	
	(2) ABI 0.40-0.59	12(60%)	11(50%)	
	(3) ABI <0.39	4(20%)	4(20%)	
Foot infection	(0) None	15(75%)	15(75%)	§0.999
	(1) Mild: local inflammation (Skin, SC) erythema >0.5cm ≤2cm	3(15%)	3(15%)	
	(2) Moderate: local infection with erythema >2cm involving deep structures	2(10%)	2(10%)	
	(3) Severe: local infection with signs of SIRS	0	0	
Wifi score	Stage 1	8(40%)	6(30%)	§0.640
	Stage 2	7(35%)	9(45%)	
	Stage 3	3(15%)	1(5%)	
	Stage 4	2(10%)	4(20%)	

§: Fisher's Exact test.

Table 3: Patency between the studied groups:

Time		Covered (Total= 20)	BMS (Total= 20)	*p*-value
Month	Primary	20(100%)	20(100%)	NA
	Primary	20(100%)	18(90%)	§0.487
6 Months	Assisted	20(100%)	19(95%)	§0.999
	Secondary	20(100%)	20(100%)	NA
	Primary	18(90%)	19(95%)	§0.999
12 Months	Assisted	20(100%)	20(100)	NA
	Secondary	20(100%)	20(100%)	NA
	Primary	18(90%)	15(75%)	§0.407
18 Months	Assisted	19(95%)	19(95%)	§0.999
	Secondary	20(100%)	20(100%)	NA

NA: Not applicable; #: Chi square test; §: Fisher's Exact test.

Table 4: Success between the studied groups:

Complications	Covered (Total= 20)	BMS (Total= 20)	*p*-value
Limb Salvage	19(95.0%)	19(95.0%)	§0.999
Technical success	20(100.0%)	20(100.0%)	NA

NA: Not applicable; §: Fisher's Exact test.

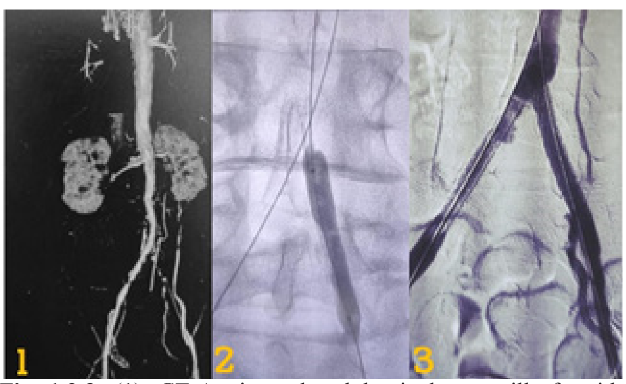

Fig. 1,2,3: (1): CT Angiography abdominal aorta till cfa with 3d re-construction showing TASC D lesion of CIA; (2): Intra-operative angiography showing crossing both CIA lesions with Left CAI pre-dilatation; (3): Bilateral CIA stenting with Covered stent LIFE STREAM®.

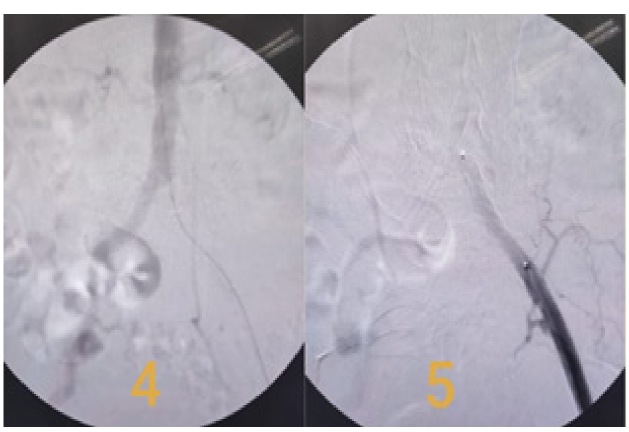

Fig. 4,5: Inra- operative angiography of lower abdominal aorta and both iliac arteries show; (4): Left CIA Tasc D lesion; (5): Post CIA stenting with Bare metal stent omnilink elite®.

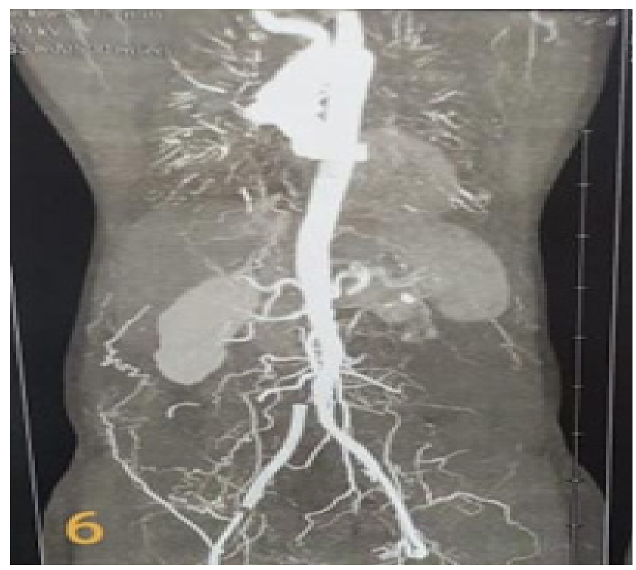

Fig. 6: CT Aortography till Common femoral arteries with 3D re-construction showing occluded RT bare metal CIA stent extending extending till EIA after 12 months follow up.

DISCUSSION

Anatomical distribution and disease severity are key factors that influence the choice between endovascular therapy and open surgical bypass. The Transatlantic Inter-Society Consensus (TASC) I and II guidelines offer standardized recommendations for managing peripheral arterial disease[14]. This study explored the long-term benefits of covered stents compared to bare-metal stents in patients with iliac lesions.

In this study, 40 patients with CIA lesions, as defined by TASC II, were randomly assigned to either the covered stent (CS) or bare-metal stent (BMS) groups between

November 2022 and June 2024. The results showed no significant differences in demographics or comorbidities between the two groups. Males were more prevalent in both groups (90% in BMS, 75% in CS), and their age distributions were similar (59.5±6.6 vs. 58.2±8.6 years). There were no significant differences in the prevalence of diabetes (70% in CS, 65% in BMS), dyslipidemia (95% in CS, 85% in BMS), or hypertension (90% in CS, 75% in BMS) between the groups.

Similarly, a retrospective analysis by Li *et al*.,[15] involving 209 patients with AIOD treated with BMS and CS found no significant demographic differences between the two groups.

Furthermore, Mwipatayi *et al*.,[10] ensured the comparability of results by finding no discernible demographic variations between the CS and BMS groups. Piazza *et al*.[6], however, examined the mid-term results of CS versus BMS for chronic iliac artery occlusions and noted that their CS group had a longer lesion length and more complicated anatomy, which may affect results even in the presence of propensity matching. The more complicated character of patients treated with CS is reflected in the greater incidence of severe calcifications (20.7% vs. 14.9%, $p<0.036$) and TASC D lesions (47.4% vs. 9.5%, $p<0.001$) in the CS group of the research by Li *et al*.[15]. Similarly, balloon expandable CS and BMS for advanced iliac artery atherosclerosis were evaluated in a randomized experiment by Bekken *et al*.,[14].

Regarding clinical presentation, our investigation revealed that 80.0% of patients in both groups presented with claudication, while 45.0% experienced rest pain and 25.0% exhibited tissue loss. There were no significant differences in Rutherford classification, with ischemic rest pain being the most common presentation (55.0% in both groups). This distribution was echoed by Li *et al*.,[15], who reported a similar clinical presentation, with a preoperative ABI of 0.48±0.26 in the CS group and 0.52±0.19 in the BMS group ($p= 0.032$), highlighting a greater baseline severity in the CS cohort. Taeymans *et al*.,[16] observed intermittent claudication in 68% of cases and critical limb ischemia (CLI) in 32%, mirroring our distribution.

Piazza *et al*.,[6] noted greater anatomical complexity in patients treated with CS, which aligns with the slightly higher rates of ischemic rest pain observed in our CS group. Regarding anatomical characteristics, our study found no significant differences in lesion complexity between the groups. TASC II classifications were evenly distributed, with 55.0% of CS cases and 45.0% of BMS cases classified as TASC C ($p= 0.828$). Lesion length also showed no difference, with 50.0% of both groups exhibiting mild calcifications. This indicates that the anatomical challenges were evenly matched between the two treatment modalities, thereby minimizing potential bias in the outcomes. Li *et al*.,[15] observed that longer stents were used in the covered stent (CS) group (9.3±3.3 cm vs. 5.8±2.6cm, $p<0.001$) and that this group had a higher incidence of complex TASC D lesions. Mwipatayi *et al*.,[10] similarly highlighted the advantages of CS in managing complex cases, particularly TASC C and D lesions, reporting a 64% reduction in the risk of restenosis compared to bare metal stents (BMS). In a related study.

With regard to wound characteristics and ischemia criteria, our study found no significant differences in wound features or levels of ischemia based on ankle-brachial index (ABI) ranges or the distribution of (WIFI) score between the CS and BMS groups. Seventy-five percent of patients in both cohorts presented with no ulcers, while preoperative ABI scores indicated severe ischemia (ABI <0.59) in 60.0% of CS cases and 55.0% of BMS cases ($p= 0.999$). Furthermore, Taeymans *et al*.,[16] reported an increase in ABI from 0.65±0.22 preoperatively to 0.88±0.15 postoperatively in patients treated with covered stents. In a multicenter study conducted by Laird *et al*.,[11], which evaluated the LIFESTREAM CS for iliac artery disease over a period of nine months, a mean ABI improvement of 0.32±0.15 was noted following CS placement, echoing our findings of a postoperative ABI enhancement (mean ABI of 0.85±0.13 in CS versus 0.80±0.14 in BMS at 18 months, $p= 0.251$).

Although the differences did not reach statistical significance, our study found that covered stents (CS) showed slightly better postoperative outcomes across several parameters, suggesting a tendency in favor of CS. The ABI values in the CS group were consistently higher throughout the follow-up period. At 18 months, the mean ABI for the CS group was 0.85, compared to 0.80 for the BMS group. This aligns with findings from Li *et al*.,[15], who observed greater hemodynamic improvements in the CS group. Additionally, studies by Bekken *et al*.,[14] and Taeymans *et al*.,[16] also showed high ABI values after CS insertion, indicating successful blood flow restoration. Our study's primary patency rates at 6 and 18 months favored CS, consistent with Mwipatayi *et al*.,[10], who found significantly higher primary patency rates for CS in advanced lesions (HR: 0.35; 95% CI: 0.15-0.82; $p= 0.02$) and lower restenosis rates in TASC C and D lesions. Similarly, Bekken *et al*.,[14] reported comparable primary patency rates at two years (89.1% for CS vs. 84.7% for BMS, $p= 0.40$), which aligns with our results after 18 months (90.0% for CS vs. 75.0% for BMS, $p= 0.407$).

Additionally, Piazza *et al*.,[6] and Laird *et al*.,[11] found improved patency outcomes for covered stents (CS), especially in TASC D or long lesions. Supporting our results, Bontinis *et al*.,[17] conducted a comprehensive review and meta-analysis of 11 studies involving 1,896 patients and 2,092 lesions to evaluate the safety and efficacy of CS and bare-metal stents (BMS) for aorto-iliac disease. Their study revealed significantly higher primary patency rates for CS at 48 months (91.2%, 95% CI 84.1–

99.0%) compared to BMS (83.5%, 95% CI 70.9–98.3%), particularly in TASC C and D lesions (92.4% for CS vs. 80.8% for BMS). Our research also showed fewer medical occurrences in the CS group—no incidents were reported at 18 months—compared to the BMS group, which had a 20.0% incidence (p= 0.106). Furthermore, the incidence of restenosis was lower in the CS group (20.0% vs. 35.0%, p= 0.480). Similarly, Bekken *et al*.[14] also reported comparable findings, noting fewer issues in the CS cohorts. Consistent with our results, which showed a reduced restenosis rate in the CS group (20.0% vs. 35.0%), Mwipatayi *et al*.,[10] also highlighted decreased restenosis rates with CS, especially in advanced lesions. Moreover, Piazza *et al*.,[6] reported significantly lower restenosis rates among CS-treated patients with calcified lesions (100% vs. 63%, p= 0.01). Laird *et al*., observed a major adverse event rate of 4.7% in CS-treated patients, paralleling our low complication rates within the CS group.

Bontinis *et al*., found no significant differences between CS and BMS in technical success, 30- day mortality, or procedure-related complications, supporting our findings of 100% technical success and comparable complication rates. Hospitalization rates were slightly lower in the CS group, with one patient hospitalized at 18 months compared to two in the BMS group (5% vs. 10%, p= 0.999). This observation aligns with the conclusions of Bekken *et al*.,[13], who noted no significant differences in short-term hospitalizations but pointed out a reduced necessity for re-interventions in the CS cohort over time. Taeymans *et al*.,[16] similarly reported short hospital stays, with a median duration of two days for CS-treated patients, which reflects the overall safety and efficiency associated with the CS approach. Additionally, Li *et al*., observed fewer re-interventions in the CS group, consistent with our lower hospitalization rates.

The procedure's effectiveness is reflected in the 95.0% limb salvage rate across both groups and the 100% technical success rate observed in our study. These findings are consistent with those of Li *et al*.,[15], Bekken *et al*.,[13], and Taeymans *et al*.,[16], all of whom reported high technical success rates for both CS and BMS. Mwipatayi *et al*.,[10] particularly highlighted the long-term benefits of CS in preserving patency and reducing restenosis in complex lesions. Additionally, Laird *et al*., reported an impressive 98.3% acute technical success rate for CS, indicating that few cases required additional treatment.

STRENGTHS OF OUR STUDY

Our study uniquely contributes by focusing on the underrepresented Egyptian population in iliac artery disease research. The prospective cohort design ensured systematic data collection and minimized bias. Standardized TASC II classifications allowed clear comparisons between CS and BMS. An 18-month follow-up enabled thorough outcome assessment, with objective metrics like ABI and Doppler ultrasound ensuring reliable evaluations.

LIMITATIONS OF OUR STUDY

Despite its advantages, the study has limitations. The small sample size (20 patients per group) restricted statistical significance. Being conducted at a single center, the findings may not be widely applicable. Follow-up was limited to 18 months, leaving long-term outcomes uncertain. Also, cost-effectiveness was not assessed.

CONCLUSION

The study found that CS provide slight but consistent advantages over BMS in treating iliac CIA lesions. Though not statistically significant, trends suggest CS may better maintain patency and reduce complications in complex cases. Both stent types were technically successful with acceptable outcomes, contributing valuable data on iliac artery disease in the Egyptian population.

CONFLICTS OF INTERESTS

There are no conflicts of interest.

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