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Palmar arch bypass is a feasible option for the treatment of critical upper limb

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INTRODUCTION

Successful surgical or endovascular treatment in lower limb critical ischemia have extensively been reported with very good outcomes. However, there is no clear consensus on an optimal modality of revascularisation in patients with critical upper limb ischemia (CULI). The results of endovascular interventions are less promising in long occlusive and very distal lesions. les. Surgical bypasses, on the other hand, even though have good patency and durable results in lower limbs, have not been adopted on a wider scale in upper limbs, with very little reports on palmar arch revascularization.

AIM

We present our experience and technique of vein bypass exclusively to palmar arch for the treatment of CULI.

METHODS

Retrospectively analyses of prospectively collected data of all patients with critical upper limb ischemia who underwent palmar arch bypasses between 2015 and 2024. Primary outcomes included technical success, major upper limb amputation – above wrist, need for digital amputation, pain relief, 30 days mortality, patency of the bypass (primary and secondary), wound healing at 12 months and amputation-free survival .

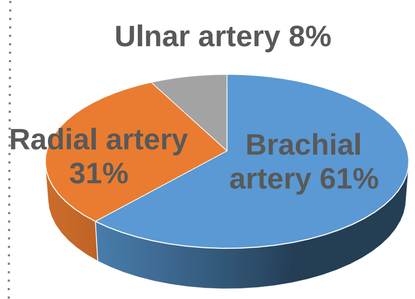
RESULTS

Thirteen bypasses were performed in 8 males and 1 female patients with median age of 65 years (range 48-77 years). All patients presented with digital gangrene and rest pain. All patients had failed endovascular revascularization. Technical success rate was 100% and there were no major perioperative complications. None of the patients needed a major amputation, although all underwent partial or complete amputation of affected digits. All patients had immediate pain relief. 30-day mortality was zero. Longest follow up period was 72 months and shortest being 2 months. No patients had recurrence of symptoms. All wounds healed fully. Primary patency was 100% at 6 months, while the overall secondary patency up to 12 months was 92 %. The overall amputation free survival was 75%.

Table-1: Patients' Demographic Data

Patients	9
Men	(89%)
Median age (range)	64 (48 – 77)
Diabetes mellitus	67%
Chronic renal failure	22%
Ischaemic heart disease	67%
Hypertension	78%
Smokers/Ex-smokers	56%
Previous leg bypass	33%

Inflow artery



Target Palmar arch

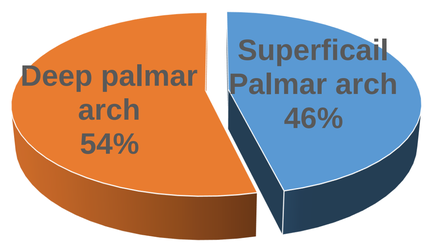
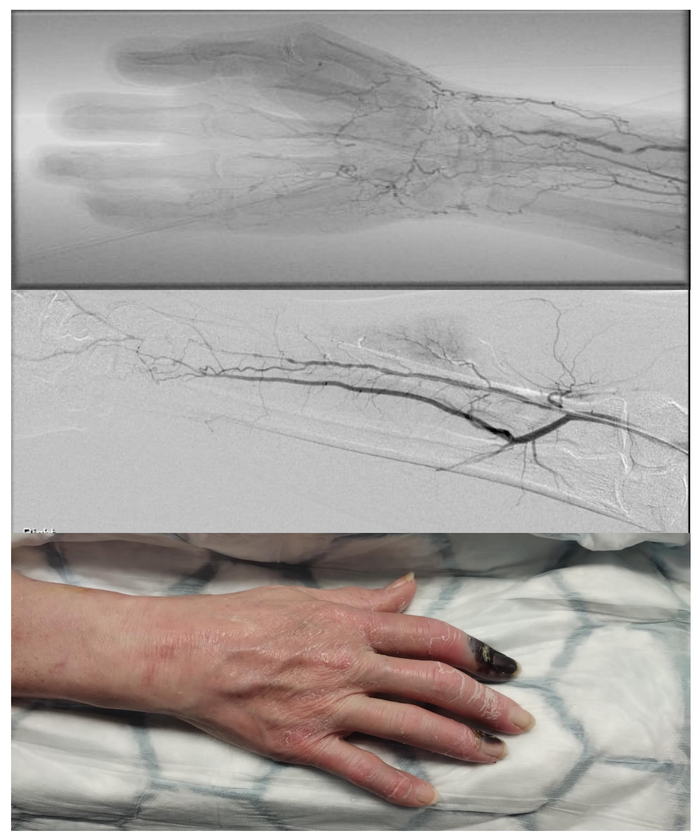


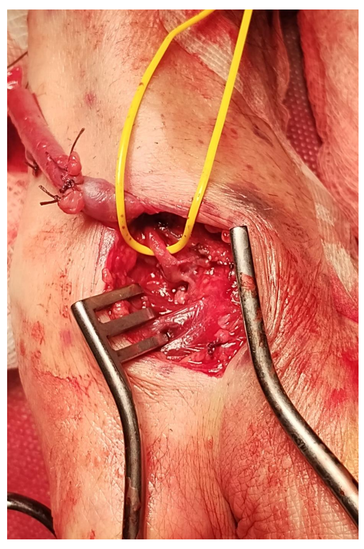
Table-2: Mortality and follow up

Patient	Bypass	Salvage angioplasty	Patent graft on Follow up	Mortality
1	1	No	72 months	No
	2	No	48 months	
2	3	Yes	15 months	Yes
	4	No	3 months	
3	5	No	34 months	No
4	6	No	2 months	Yes
5	7	No	14 months	No
	8	No	3 months	No
6	9	No	10 months	No
7	10	No	4 months	No
8	11	No	4 months	No
	12	No	2 months	No
9	13	No	2 months	No

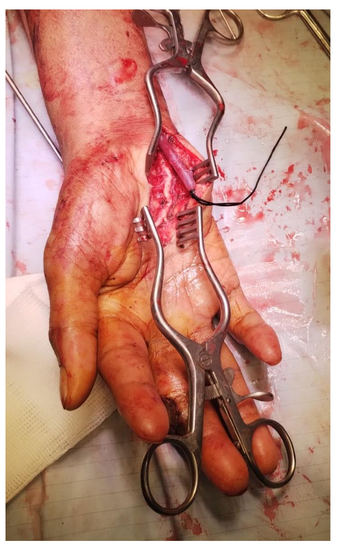
CULI and failed Endovascular revascularization



Graft and Deep Palmar arch



Graft and Superficial Palmar arch



CONCLUSIONS

Surgical revascularisation with bypass to palmar arch can be safely performed with excellent patency rates in patients with critical upper limb ischemia.

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