



PRINCIPALS OF MANAGEMENT OF VASCULAR INJURIES

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Distal to the deltopectoral groove (axillary artery and distal)

Distal inguinal ligament (common femoral artery and distal)



NONOPERATIVE MANAGEMENT



NONOPERATIVE MANAGEMENT

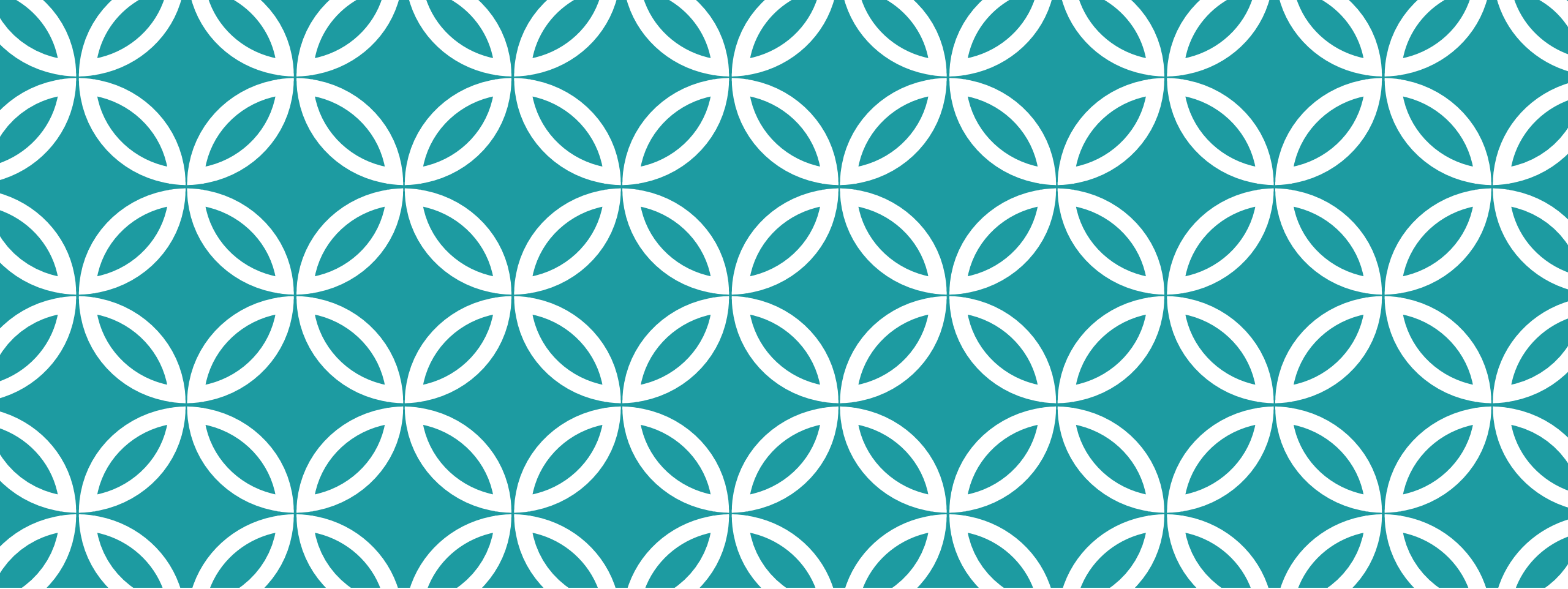
When blunt and penetrating injuries to distal branches of the axillary and common femoral arteries are diagnosed with CTA, nonoperative management can be successful in up to 70% of cases.

NONOPERATIVE MANAGEMENT

Injuries identified on imaging

- No active hemorrhage
- Not distal ischemia
- small intimal tears or flaps, pseudoaneurysms, and arteriovenous fistulas.
- A high index of suspicion
- Serial surveillance

Early repair might be more appropriate if prospects for follow-up are uncertain.



ENDOVASCULAR THERAPY





ENDOVASCULAR THERAPY

Similar or improved outcomes compared with open repair

Despite being applied in patients with a significant burden of associated injuries and medical comorbidities.

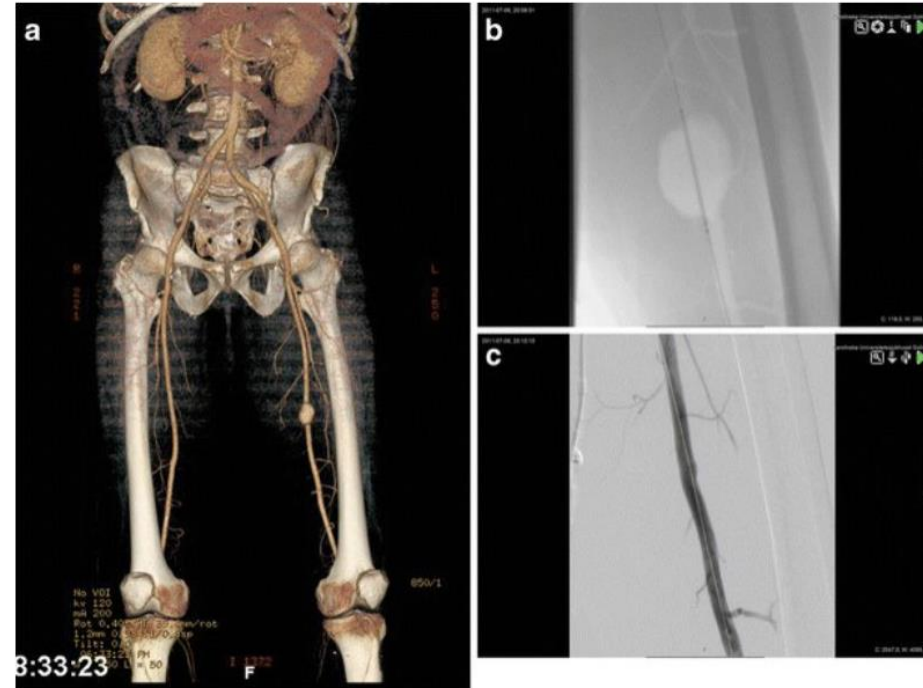
ENDOVASCULAR THERAPY

Most appropriate when the morbidity difference between the open and endovascular procedures is greatest.

- Junctional vessels (such as the subclavian and iliac). For proximal vascular control

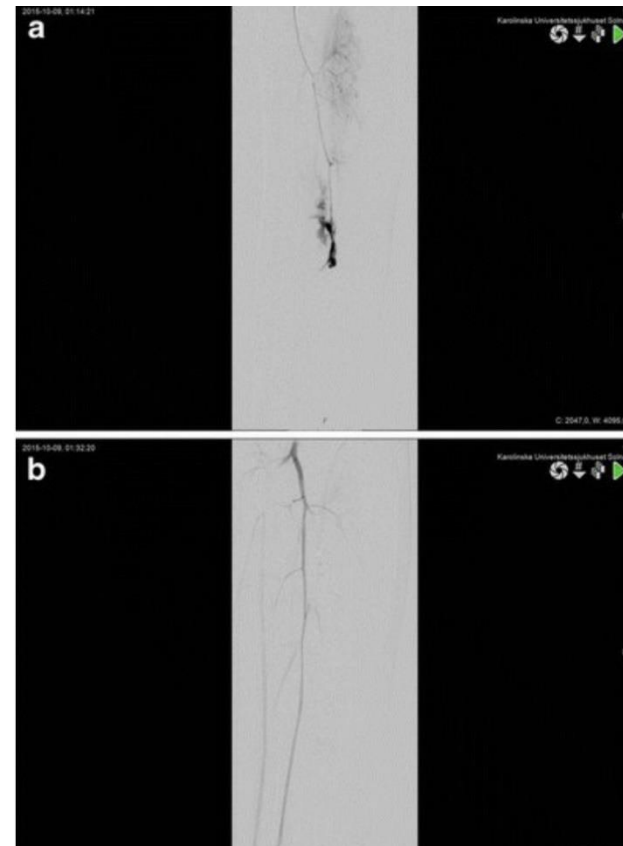
ENDOVASCULAR THERAPY

Stent-grafts to treat arterial injuries manifesting with hemorrhage and occlusion.



ENDOVASCULAR THERAPY

Catheter-directed embolization with coils & glue for treatment of small pseudoaneurysms and arteriovenous fistulas of the crural and deep femoral branch arteries.



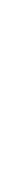
ENDOVASCULAR THERAPY

Availability at all hours

- equipment
- expertise



OPEN SURGIVAL MANAGEMENT



OPEN SURGICAL MANAGEMENT

The mainstays of the management of most extremity vascular injuries.

If possible use a table amenable to fluoroscopic imaging

Wide prep & drape circumferentially

VEIN GRAFT

Harvest site should be included in the prepared operative field.

Site of harvest

- Injured extremity no venous injury present
- The vessel to be harvested is well peripheral to the site of injury.


PROXIMAL VASCULAR CONTROL

The general principles of establishing proximal and distal vascular control and restoring in-line flow to a suitable outflow bed are the same for the treatment of traumatic lesions as for any other vascular defect.

Tourniquet

Longitudinally incision, directly over the target vessel, proximal and distal to the injury.

Approach the injury zone after vascular control is achieved.



An upper extremity control may require infraclavicular or supraclavicular incisions to expose the subclavian vessels. Retroperitoneal or inguinal ligament-splitting incisions may be required for proximal control in the lower extremity.

ANTICOAGULATION

If systemic anticoagulation not possible use local anticoagulation with heparinized saline injection directly into the injured vessel proximal and distal to the injury.

DÉBRIDEMENT

Wide débridement of contaminated and nonviable tissue within the zone of vascular injury to healthy-appearing tissue before a final plan for vascular repair is made.

Assessment of the availability of healthy tissue to cover the vascular repair

The injured vessel should be débrided

- Intimal injury can extend beyond what is appreciated by an injured vessel's outward appearance.

BALLOON CATHETER THROMBECTOMY

Inflow and outflow vessels should undergo gentle balloon catheter thrombectomy to confirm patency.

A subjective assessment of the bleeding forward and backward from the injured vessel.

OPTIONS ACCORDING PATIENT'S PHYSIOLOGIC STATUS

urgent surgical repair with the goal of restoring inline distal flow.

- Primary spatulated end-to-end anastomosis.
- Single arteriotomy & patch angioplasty performed.
- Interposition graft

Acute ligation

- may be done with a plan for formal revascularization when the patient's overall condition stabilizes.

shunting

Amputation if neither of these can be safely performed

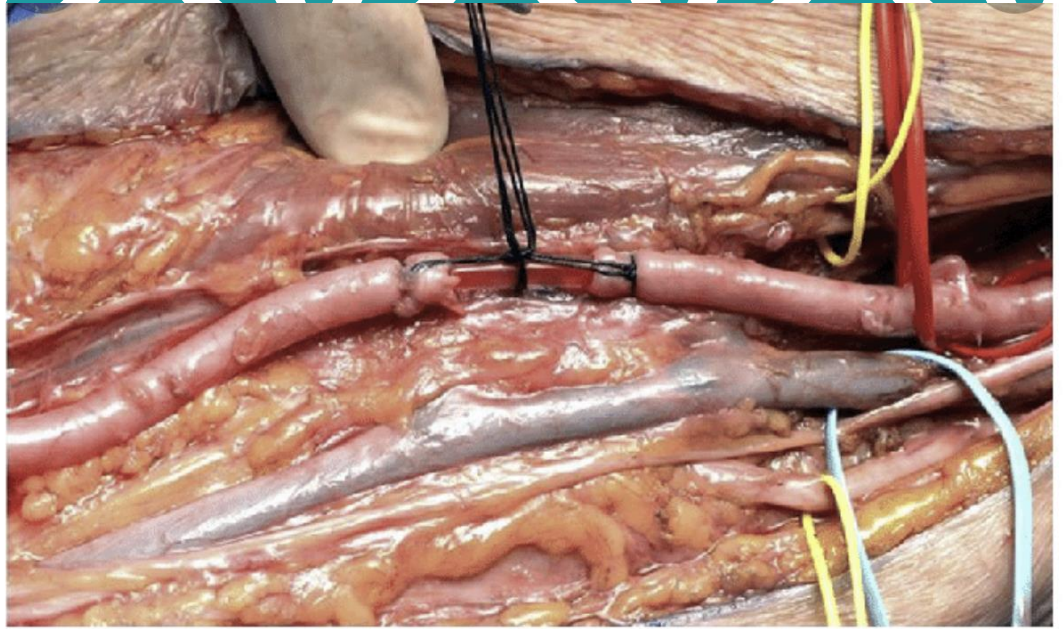
GRAFT RESULTS

Vein 30-day patency rates = 90%.

- occlusions first week, technical problems

All open traumatic wounds are contaminated so vein is better.

A short-segment prosthetic graft uncontaminated (typically blunt) arterial injury to a proximal vessel such as the axillary or common femoral artery, where size match with the saphenous vein may be a problem.



TEMPORARY SHUNTING

TEMPORARY SHUNTING

To allow orthopedic fixation, arterial shunt dwell times 1 to 3 hours, patency rates approaching 100% without systemic anticoagulation.

Damage control management, 12 hours to over 24 hours, allowing time for resuscitation and physiologic stabilization before definitive vascular repair.

Distal shunts infrequently used, and have poor patency.

Shunts placed in the venous system fare surprisingly well in terms of patency, despite the absence of systemic anticoagulation and dwell times of up to a few hours.



Axillary Artery

Brachial Artery

Radial and Ulnar Arteries

Femoral Arteries

Popliteal Artery

Tibial Arteries

Thanks for your time &
attention

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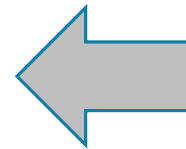
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