

# VASCULAR ACCESS

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## Management of Steal or AV Access-related Hand Ischemia



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# Steal – AV Access-related Hand Ischemia

## Prevention



Develop and implement strategies to both prevent and treat AV access steal should be developed before AV access creation, to reduce the risk of AV access steal and related morbidity, respectively.

CPG 18.1

**Table 18.1.** Strategies to Reduce the Incidence of AV Access Steal

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Assessment of arterial inflow imaging with correction of inflow stenoses
Correct inflow stenosis or use contralateral extremity
Avoid distal brachial artery–based procedures
Avoid large conduits

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Abbreviation: AV, arteriovenous.

# Steal – AV Access-related Hand Ischemia

## Identify High-risk Patients

**Table 18.2.** Clinical Predictors of AV Access Steal

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Advanced age
Female sex
Diabetes mellitus
Peripheral vascular disease
Large outflow conduits
Multiple prior permanent access procedures
Distal brachial artery–based procedures (ie, near antecubital fossa)
Prior episode of AV access steal

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Abbreviation: AV, arteriovenous.



## Referral and Treatment

- After AV access creation, patients should be monitored closely for signs and symptoms of AV access steal and managed appropriately
- Mild to moderate signs and symptoms - close monitoring for progression of ischemia and worsening symptoms
- Moderate to severe signs and symptoms - urgent treatment to prevent longer-term disability

CPG 18.1



# Steal – AV Access-related Hand Ischemia

## Referral and Treatment

- Patients with signs and symptoms of AV access steal should be referred urgently to a surgeon/interventionist for the definitive treatment
- Optimal treatment should be based on the patient's clinical presentation, local expertise, and resources

CPG 18.3

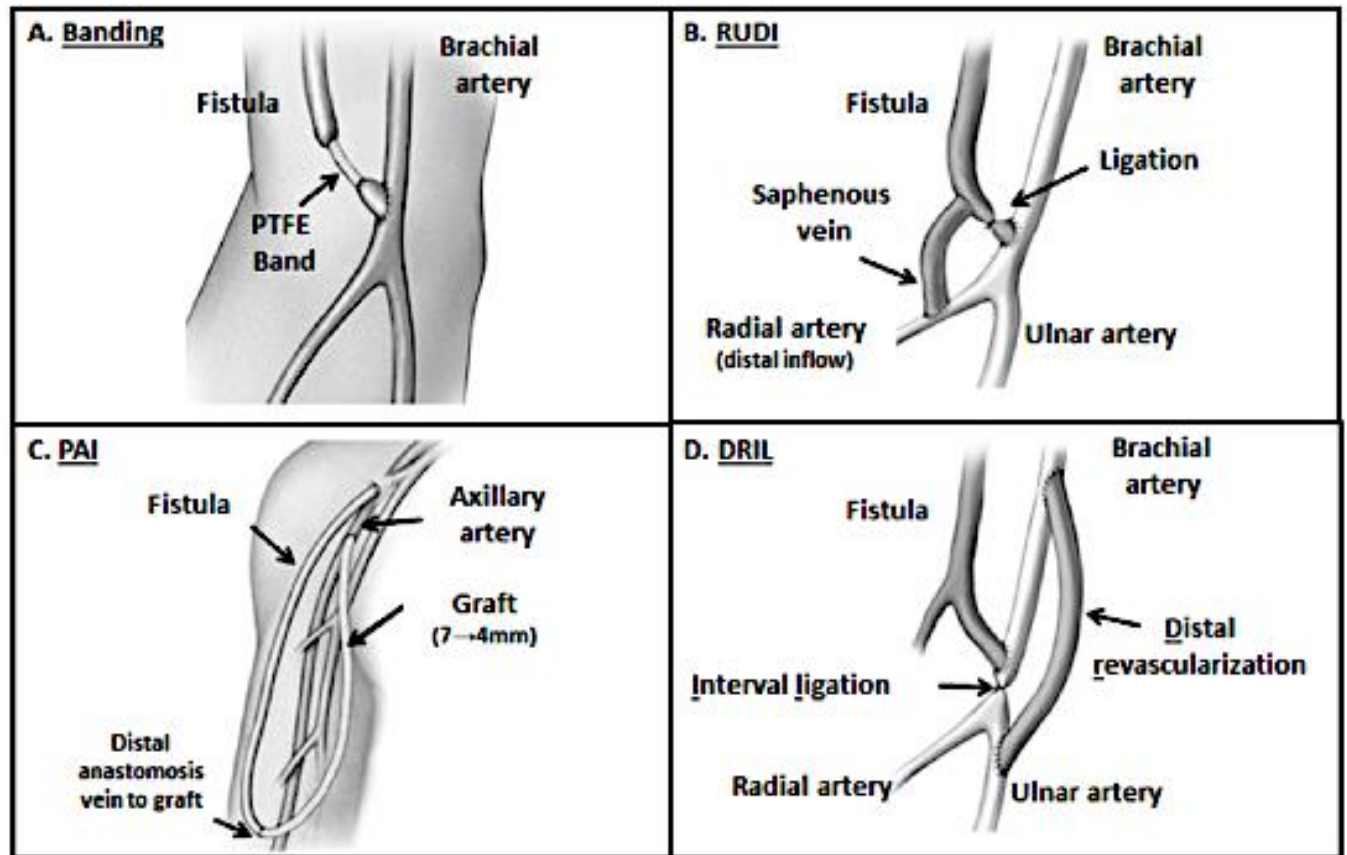
CPG 18.4



**Table 18.4.** Treatment Options for AV Access Steal

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- Ligation (if symptoms are severe, limb loss at risk, or no other option available)
  - Correction of arterial inflow stenosis
  - Flow limiting or banding
  - Proximalization of the arterial inflow
  - Revision using distal inflow
  - Distal revascularization and interval ligation
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Abbreviation: AV, arteriovenous.



Scali ST and Huber TS, *Current Vascular Surgery* 2000.

## Steal – Detailed Justification

- AV fistula reduces distal perfusion → acute/chronic ischemia
- Spectrum of symptoms from mild → gangrene
- Moderate/severe symptoms require treatment
- Clinical diagnosis – non-invasive imaging complementary
- Strategies to reduce symptoms in high-risk patients/access
- Treatment strategies – complementary
- Multiple determinants of treatment – access, durability, conduit, expertise, flow, etiology, patient



# Key Points for the Detection and Management of Ischemic Steal Syndrome

CPG 18.2-18.4

## Symptoms:

- Hand coolness, tingling, or numbness
- Hand pain on dialysis, hand cramping on dialysis
- Finger pain at rest
- Finger gangrene or non-healing wounds
- Forearm muscle pain with activity (claudication)

## Physical exam:

- Cool digits
- Ulceration of fingers or hand
- Lack of radial or ulnar pulses
- Sensory deficits
- Reduced motor function/strength

## Vascular testing:

Reversal of flow in artery distal to arterial anastomosis, diminished digital pressures, reduced amplitude of digital pulse-volume recordings.

## Grading/Management:

1. Mild: Cool extremity with few symptoms. No intervention required – continue to monitor.
2. Moderate: Intermittent symptoms during dialysis, claudication. Intervention may be required.\*
3. Severe: Ischemic rest pain, tissue loss. Intervention mandatory.\*\*

\* Consider early referral to a local surgeon with experience in managing ischemic steal syndrome for further evaluation and testing.

\*\* Urgent referral to a local surgeon with experience in managing ischemic steal syndrome for further evaluation and testing as necessary.

## Surgical/endovascular treatment options:

- Correction of arterial inflow stenosis
- Flow limiting or banding
- Revision using distal inflow (RUDI)
- Proximalization of the arterial inflow (PAI)
- Distal revascularization and interval ligation (DRIL)
- Ligation/occlusion (last resort and reserved when limb loss likely, or no other option available)

Refer to detailed algorithm for further management

# Detailed Management Algorithm for Ischemic Steal Syndrome

