



Beth Israel Deaconess  
Medical Center



HARVARD MEDICAL SCHOOL  
TEACHING HOSPITAL

# Aneurysms- Which to Treat and How

Yael Vin, MD, MPH, FACS

# Outline

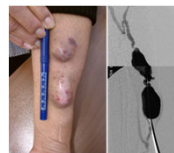
- The Problem



- Indications to Treat



- Surgical Treatment



After 1<sup>st</sup> stage



- Outcomes



Beth Israel Deaconess  
Medical Center



HARVARD MEDICAL SCHOOL  
TEACHING HOSPITAL

# The problem

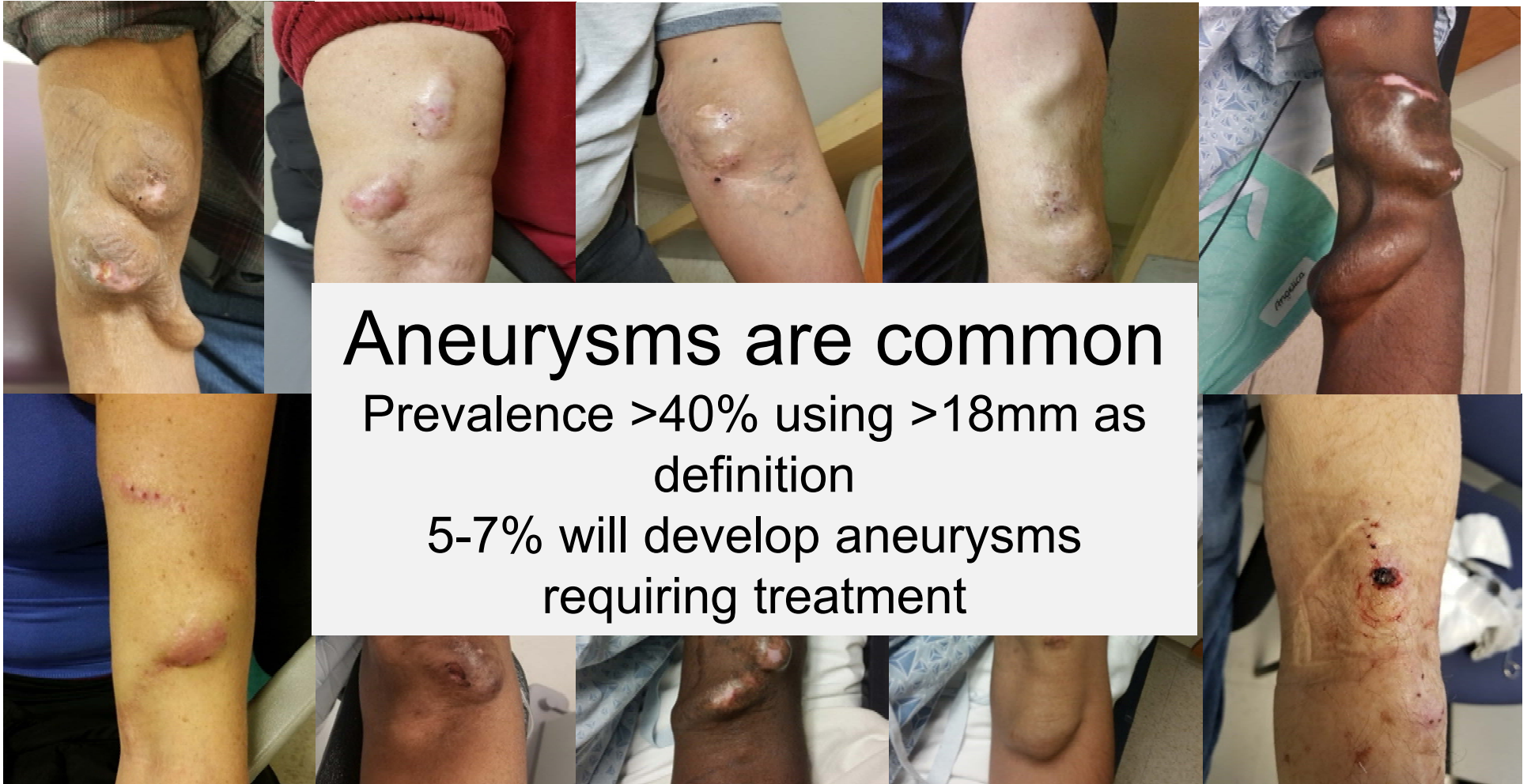


Beth Israel Deaconess  
Medical Center



HARVARD MEDICAL SCHOOL  
TEACHING HOSPITAL

# The problem



**Aneurysms are common**

Prevalence >40% using >18mm as definition

5-7% will develop aneurysms requiring treatment



Beth Israel Deaconess  
Medical Center



HARVARD MEDICAL SCHOOL  
TEACHING HOSPITAL



# Indication to Treat

## 1. Prevention of bleeding



**Skin**  
determining factor



Beth Israel Deaconess  
Medical Center



HARVARD MEDICAL SCHOOL  
TEACHING HOSPITAL

# SKIN



Normal

discolored

Thinning,  
tense,  
shiny

Scabs,  
superficial  
ulcerations

Ulcers,  
impending  
rupture



Beth Israel Deaconess  
Medical Center



HARVARD MEDICAL SCHOOL  
TEACHING HOSPITAL

# SKIN



Normal

discolored

Thinning,  
tense,  
shiny

Scabs,  
superficial  
ulcerations

Ulcers,  
impending  
rupture



Beth Israel Deaconess  
Medical Center



HARVARD MEDICAL SCHOOL  
TEACHING HOSPITAL

# SKIN



Normal

discolored

Thin,  
tense and  
shiny

Scabs,  
superficial  
ulcerations

Ulcers,  
impending  
rupture



Beth Israel Deaconess  
Medical Center



HARVARD MEDICAL SCHOOL  
TEACHING HOSPITAL



# SKIN



Normal

discolored

Thinning,  
tense,  
shiny

Scabs,  
superficial  
ulcerations

Ulcers,  
impending  
rupture



Beth Israel Deaconess  
Medical Center



HARVARD MEDICAL SCHOOL  
TEACHING HOSPITAL

# SKIN



Normal

discolored

Thinning,  
tense,  
shiny

Scabs,  
superficial  
ulcerations

Ulcers,  
impending  
rupture



Beth Israel Deaconess  
Medical Center



HARVARD MEDICAL SCHOOL  
TEACHING HOSPITAL

# SKIN

## Conservative follow-up

No significant risk of bleeding



Beth Israel Deaconess  
Medical Center



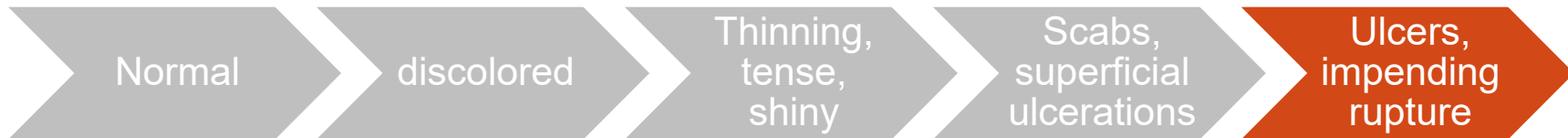
HARVARD MEDICAL SCHOOL  
TEACHING HOSPITAL

# SKIN



Surendra Shenoy, MD  
Washington University

**Urgent  
Surgical  
management**



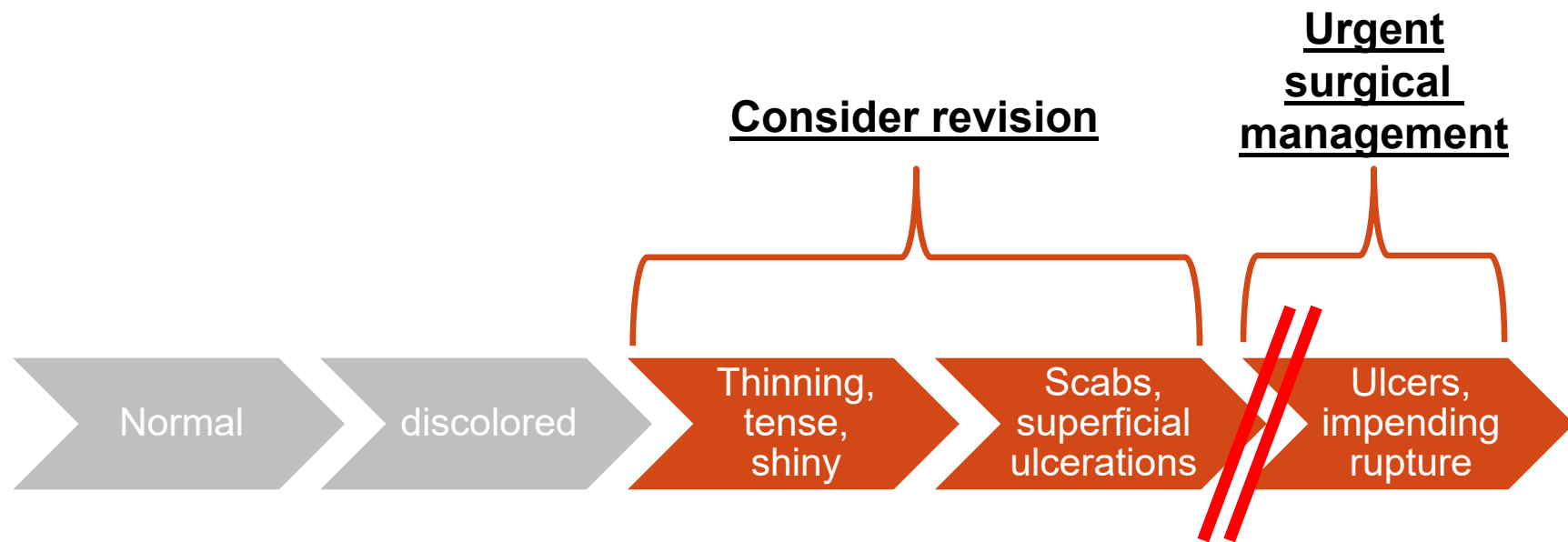
Beth Israel Deaconess  
Medical Center



HARVARD MEDICAL SCHOOL  
TEACHING HOSPITAL



# SKIN



# SKIN

## Consider revision

Severity

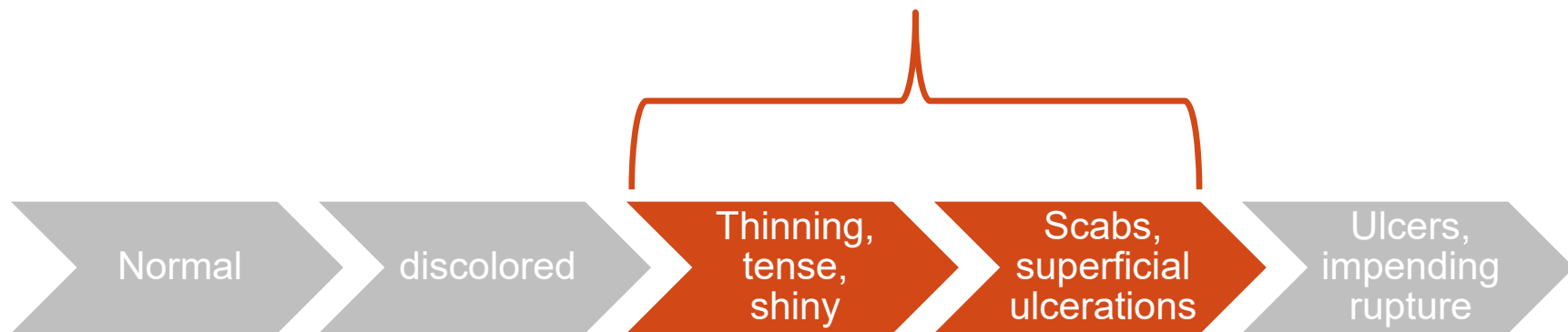
Age

Comorbidities

Alternative sites

Transplant prospects

Rate of change



Beth Israel Deaconess  
Medical Center

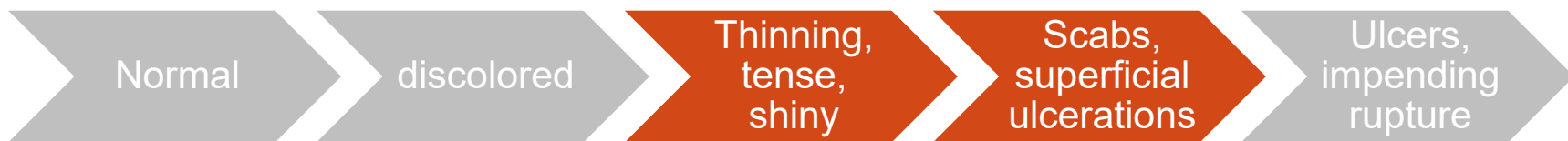


HARVARD MEDICAL SCHOOL  
TEACHING HOSPITAL

# SKIN

## Consider revision

Mobility of skin



Beth Israel Deaconess  
Medical Center

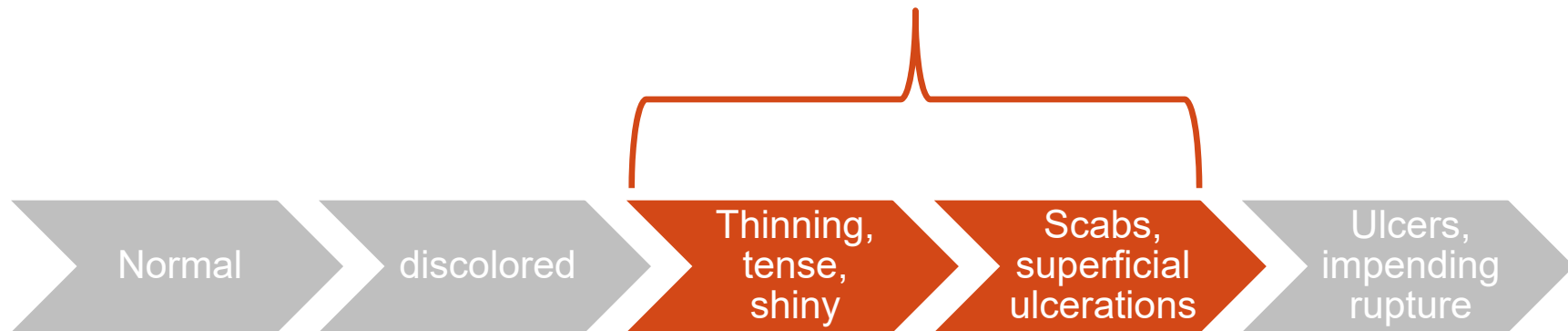


HARVARD MEDICAL SCHOOL  
TEACHING HOSPITAL

# SKIN

## Conservative management

Short interval follow-up  
Consider fistulogram/angioplasty  
Alternative cannulation sites



# Indication to Treat

## 2. Access flow



High flow

or

Low flow

Leading to thrombosis



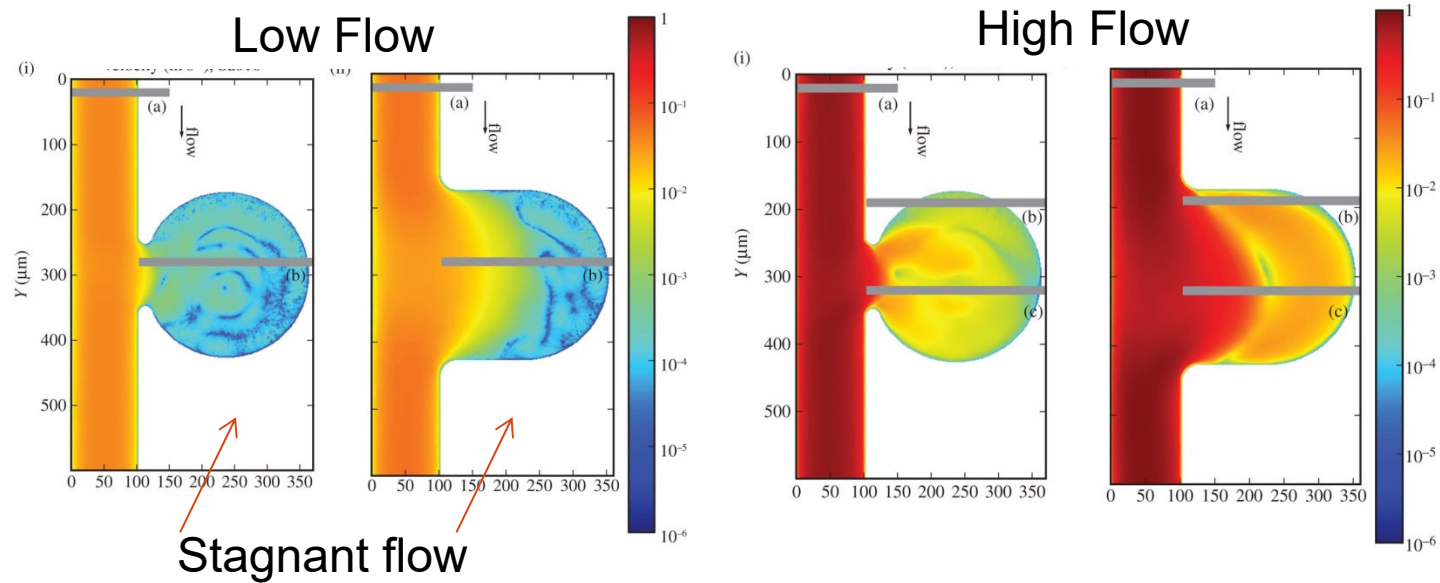
Beth Israel Deaconess  
Medical Center



HARVARD MEDICAL SCHOOL  
TEACHING HOSPITAL



1.



2. More resilient banding?

Where do the platelets go? A simulation study of fully resolved blood flow through aneurysmal vessels, *Interface Focus*, Volume: 3, Issue: 2, 2012



Beth Israel Deaconess  
Medical Center



HARVARD MEDICAL SCHOOL  
TEACHING HOSPITAL

## High Flow- Revision with banding

2015



2016



2017



58 year old, severe PHT → TA on Transplant list



Beth Israel Deaconess  
Medical Center



HARVARD MEDICAL SCHOOL  
TEACHING HOSPITAL

## Low Flow- Revising with a thrombectomy



**\*\*Need to treat underlying cause**



Beth Israel Deaconess  
Medical Center



HARVARD MEDICAL SCHOOL  
TEACHING HOSPITAL



# Indication to Treat

## 3. Patient factors



Beth Israel Deaconess  
Medical Center



HARVARD MEDICAL SCHOOL  
TEACHING HOSPITAL

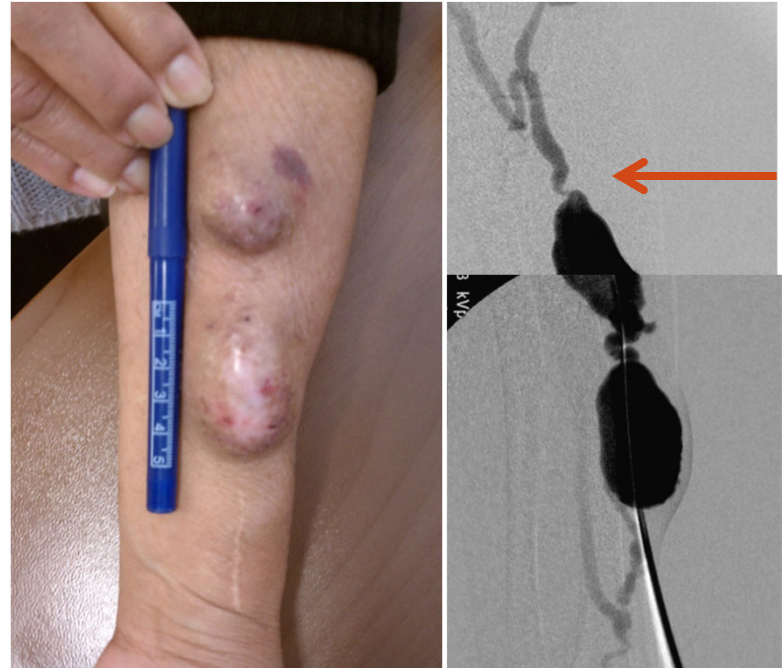
# Surgical Management

## 1. Fistulogram

High flows  
and/or  
High outflow stenosis



Repeat same site cannulation  
and/or  
Outflow stenosis



Beth Israel Deaconess  
Medical Center



HARVARD MEDICAL SCHOOL  
TEACHING HOSPITAL



# Surgical Management

## 2. Planning

No need for catheter



Multiple aneurysms  
2 stage



Single, focal  
1 stage



Beth Israel Deaconess  
Medical Center

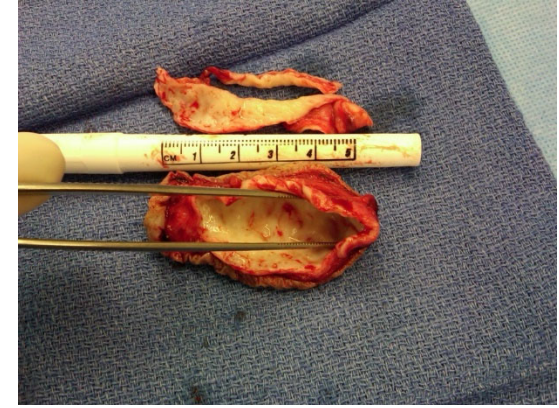


HARVARD MEDICAL SCHOOL  
TEACHING HOSPITAL

# Surgical Management

## 3. Surgery

### A. Aneurysmorrhaphy



Beth Israel Deaconess  
Medical Center

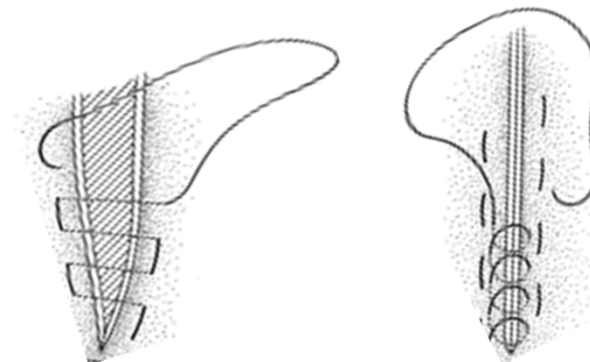


HARVARD MEDICAL SCHOOL  
TEACHING HOSPITAL

# Surgical Management

## 3. Surgery

### A. Aneurysmorrhaphy



2 layer  
closure



Beth Israel Deaconess  
Medical Center



HARVARD MEDICAL SCHOOL  
TEACHING HOSPITAL

# Surgical Management

## 3. Surgery

### A. Aneurysmorrhaphy



Partial aneurysmectomy for salvage of autogenous arteriovenous fistula with complicated venous aneurysms.  
Journal of vascular surgery 59;4, 2014



Beth Israel Deaconess  
Medical Center



HARVARD MEDICAL SCHOOL  
TEACHING HOSPITAL



# Surgical Management

## 3. Surgery

### A. Aneurysmorrhaphy



Beth Israel Deaconess  
Medical Center



HARVARD MEDICAL SCHOOL  
TEACHING HOSPITAL



# Surgical Management

## 3. Surgery

### B. Excision

Discrete aneurysm in tortuous fistula

### c. Bypass/ interposition graft



Beth Israel Deaconess  
Medical Center



HARVARD MEDICAL SCHOOL  
TEACHING HOSPITAL

# Outcomes

- Sporadic early failures in the literature
- Excellent patency at 1 year (primary 52%-87%, assisted 88%-93%)



- **Recurrence??**



Beth Israel Deaconess  
Medical Center



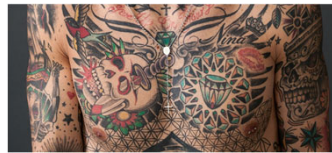
HARVARD MEDICAL SCHOOL  
TEACHING HOSPITAL

# Summary

- Aneurysms are common



- Indications to treat



Prevention of bleeding

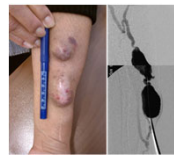


Access flow



Patient factors

- Surgical treatment



Fistulogram



Planning



Surgery

- Outcomes

Short term: low complication rate, excellent early and 1 year patency.





Beth Israel Deaconess  
Medical Center



HARVARD MEDICAL SCHOOL  
TEACHING HOSPITAL

THANK YOU!