

THE ROLE FOR AUTOGRAFT IN SPINAL FUSIONS TODAY

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OUTLINE

- Types of autograft
- Pros and cons of autograft
- Uses in my practice
- Your practice?

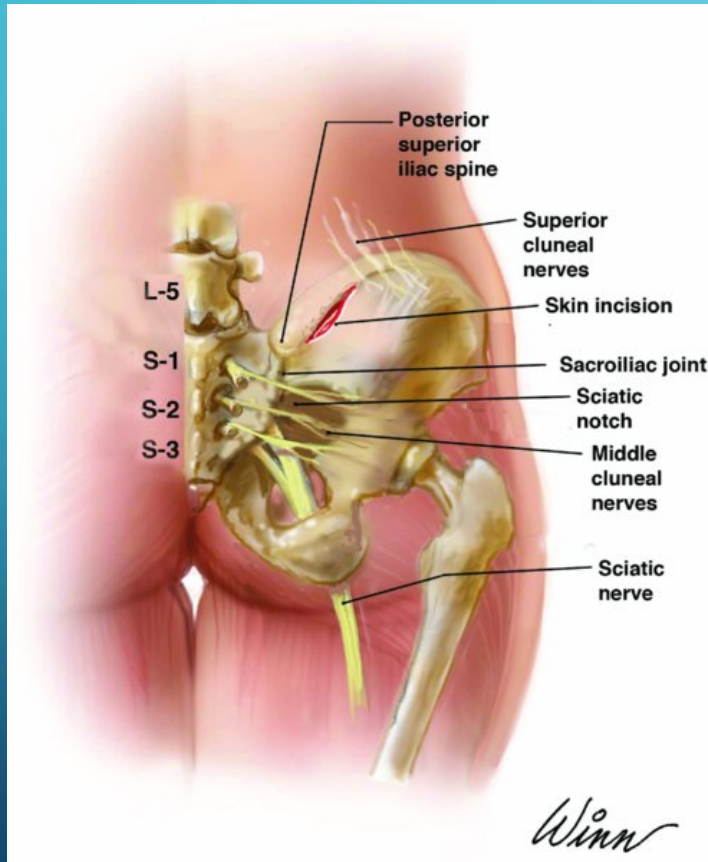
TYPES OF AUTOGRAFT

- Local bone
 - Lamina (cervical or lumbar laminectomies)
 - Anterior lip of vertebral body osteophytes (ACDF)
 - Corpectomy (trauma or degenerative, not tumor or infection)
 - Bone marrow (posterior iliac crest or vertebral body)

TYPES OF AUTOGRAFT

- Separate site/ incision
 - Posterior iliac crest
 - Cortical, Cancellous, Bone Marrow
 - Anterior iliac crest
 - Tricortical

POSTERIOR ILIAC CREST BONE GRAFT



PROS OF AUTOGRAFT

- Gold Standard
 - Better fusion rates?
- Both osteoinductive and osteoconductive
 - Live cells, growth factors, bmp
 - Live osteogenic scaffold

PROS OF AUTOGRAFT

- Structural support using tricortical ICBG in ACDF
 - Epstein NE. Anterior cervical discectomy and fusion without plate instrumentation in 178 patients. *J Spinal Disord.* 2000 Feb; 13(1): 1-8
 - No difference in fusion rates in one level ACDF's using ICBG with or without a plate/screws

PROS OF AUTOGRAFT

- No disease transmission
- Minimal cost to patient or facility
- Can eliminate need (cost) of instrumentation (one or two level ACDF)

CONS OF AUTOGRAFT

- Separate site incision
 - Pain, wound healing problems, infection
 - Silber JS, Spine 2003 Jan 15;28(2):134-9
 - 25% patients reported chronic pain at anterior ICBG donor site after ACDF

CONS OF AUTOGRAFT

- Separate site incision
 - Increased operative time
 - Increased rate of blood transfusion
 - Murphy ME, J Neurosurg Sci 2019 Feb;63(1):11-18
 - Multicenter cohort comparing autograft vs. allograft in cervical and lumbar fusions

BONE GRAFTING FOR MY ANTERIOR SPINAL FUSIONS

- Trained to do one and two level stand alone ACDF's with tricortical ICBG alone
- But needed rigid brace for 3 months

BONE GRAFTING FOR MY ANTERIOR SPINAL FUSIONS

- Started in practice using tricortical ICBG with plate/screws to eliminate need for brace
- Donor site wound problems, infection

BONE GRAFTING FOR MY ANTERIOR SPINAL FUSIONS

- Then began using structural allograft with plate/screws
- Not happy with graft resorption/collapse

BONE GRAFTING FOR MY ANTERIOR SPINAL FUSIONS

- Interbody cages packed with cancellous allograft
 - Structural allograft for one or two level Aetna cases
- Use bone marrow aspirated from vertebral body to hydrate allograft
- Anterior plate and screw instrumentation

BONE GRAFTING FOR MY POSTERIOR SPINAL FUSIONS

- Trained using cortical strips and cancellous bone obtained from posterior iliac crest through separate incision
- Began in practice using cancellous bone harvested through cortical window through separate fascial incision

BONE GRAFTING FOR MY POSTERIOR SPINAL FUSIONS

- Have evolved to using straight bone marrow aspirate harvested from same skin incision
- Combined with osteoamp or crushed cancellous allograft
- Always use posterior screw and rod instrumentation

SUMMARY OF USE OF AUTOGRAFT IN MY SPINAL FUSIONS TODAY

- Autograft is probably the best graft material available
- However, donor site morbidity and quality of allograft options makes harvest from separate skin incision unnecessary

SUMMARY OF USE OF AUTOGRAFT IN MY SPINAL FUSIONS TODAY

- Should use locally obtained autograft whenever available combined with allograft or other graft extender when necessary
 - Laminar bone
 - bone marrow from vertebral body or posterior iliac crest