

Complex Pelvic Tumors Where's the Limit?

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Disclosures

- None

Goals of Today's Talk

- Talk about Complex Disease
 - Provide 5 Extreme Examples
 - Review Mayo Experience

Importance of Teamwork



Considerations Recurrent Cancer

- **Survival**
 - No treatment (median 3 - 8 months)
 - CRT alone (median 12 - 15 months)
 - Surgery alone (mean 11 months)
 - **Multimodal therapy (37 - 72% 5yr survival)**

Why does Healthcare believe Surgery is Contraindicated?

Resectability

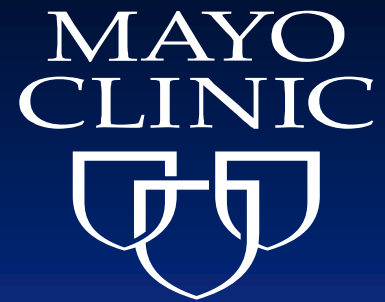
Can't get RO, so Poor Outcome

Morbidity

Complications, Disability, QOL

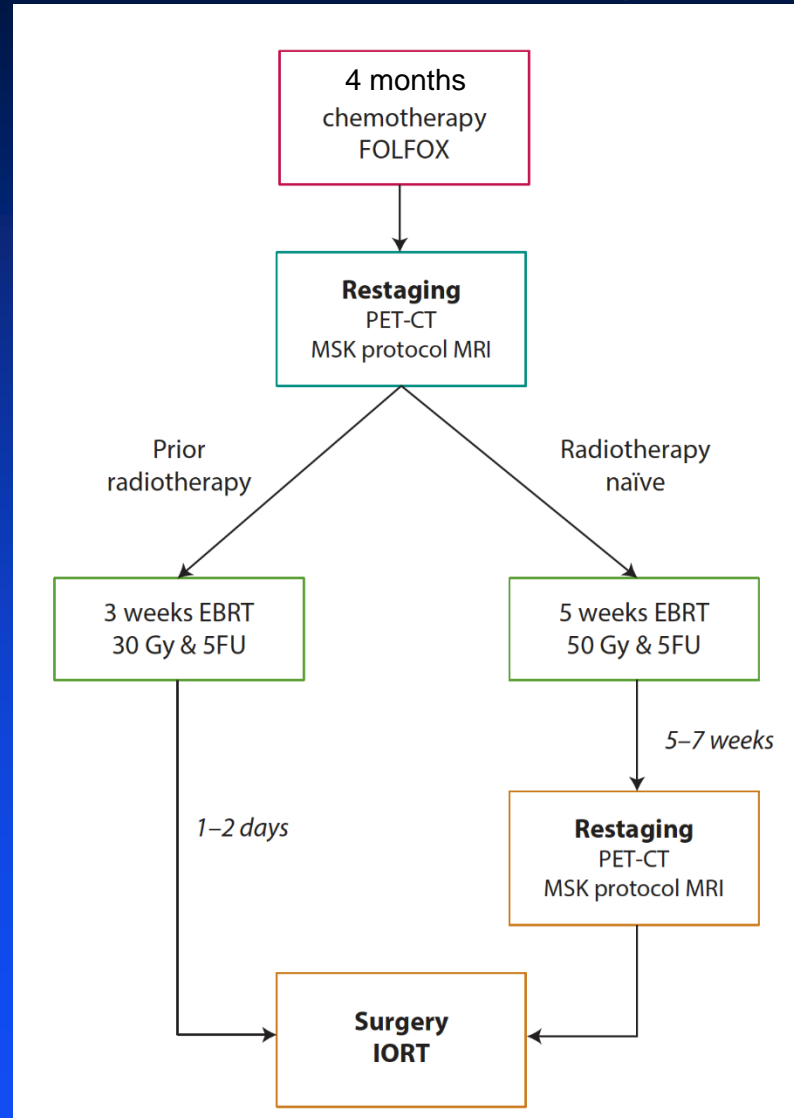
Technical Expertise

Multidisciplinary Team



Mayo Clinic Standard Practice

Treatment of Nearly all Patients

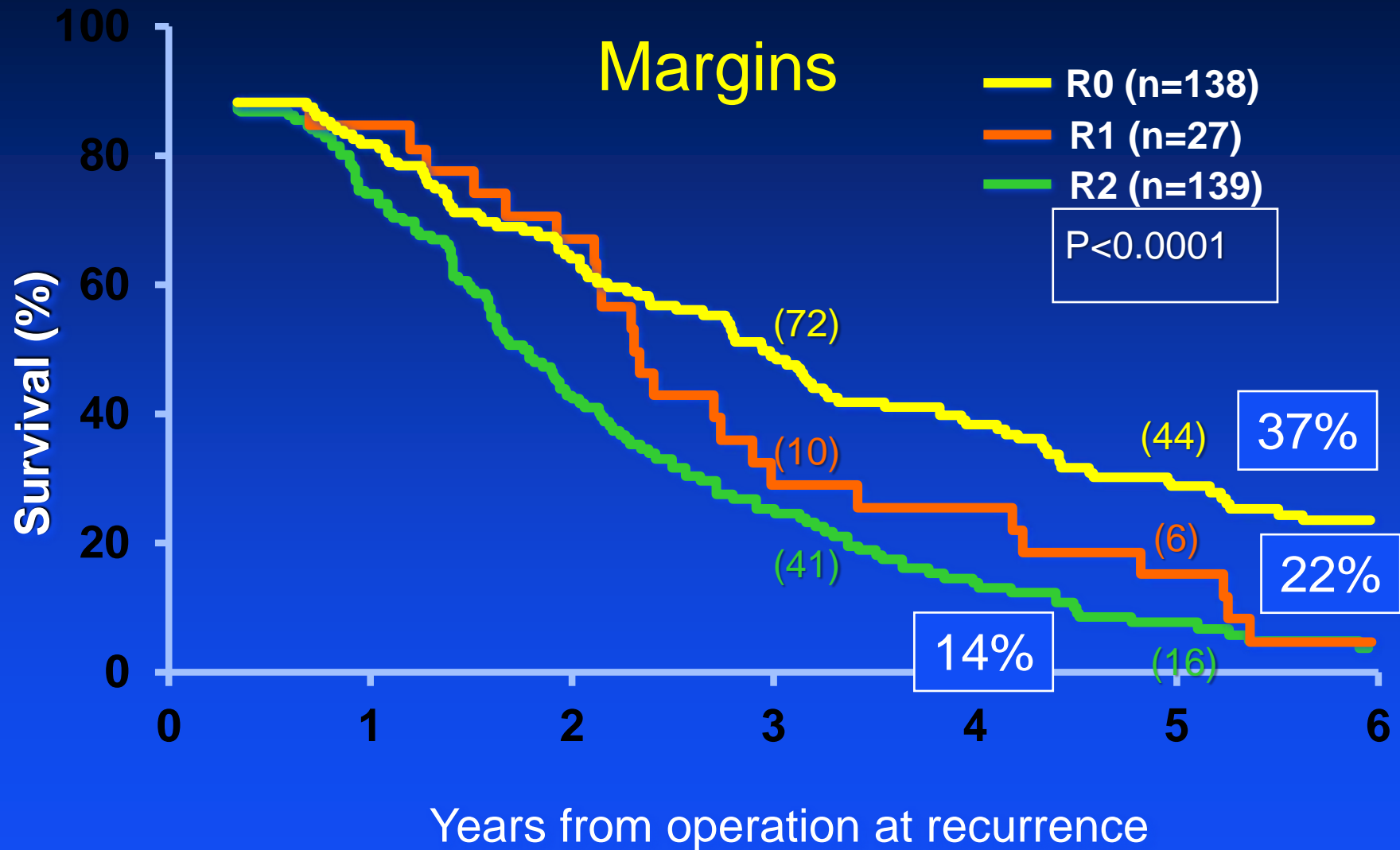


Patterns of Recurrence with IORT

Central (IORT field)	3 (2%)
Regional	25 (17%)
Distant	68 (47%)

146 patients operated for locally advanced colorectal cancer

Mathis et al: Annals of Surgery 248(4):592, 2008

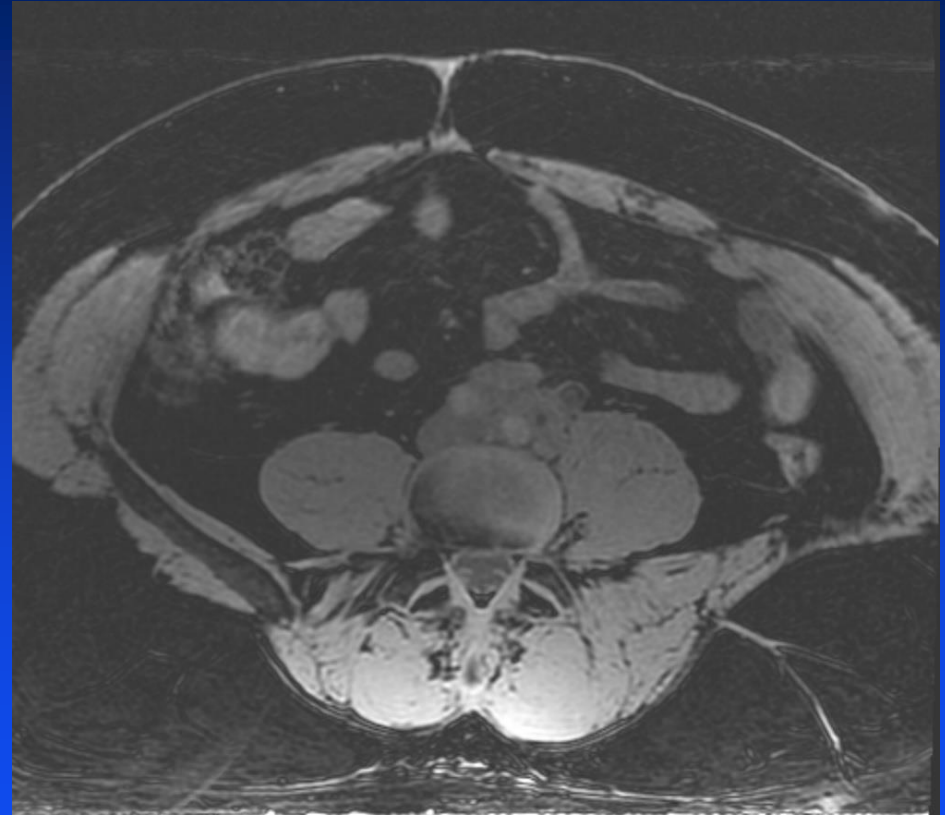
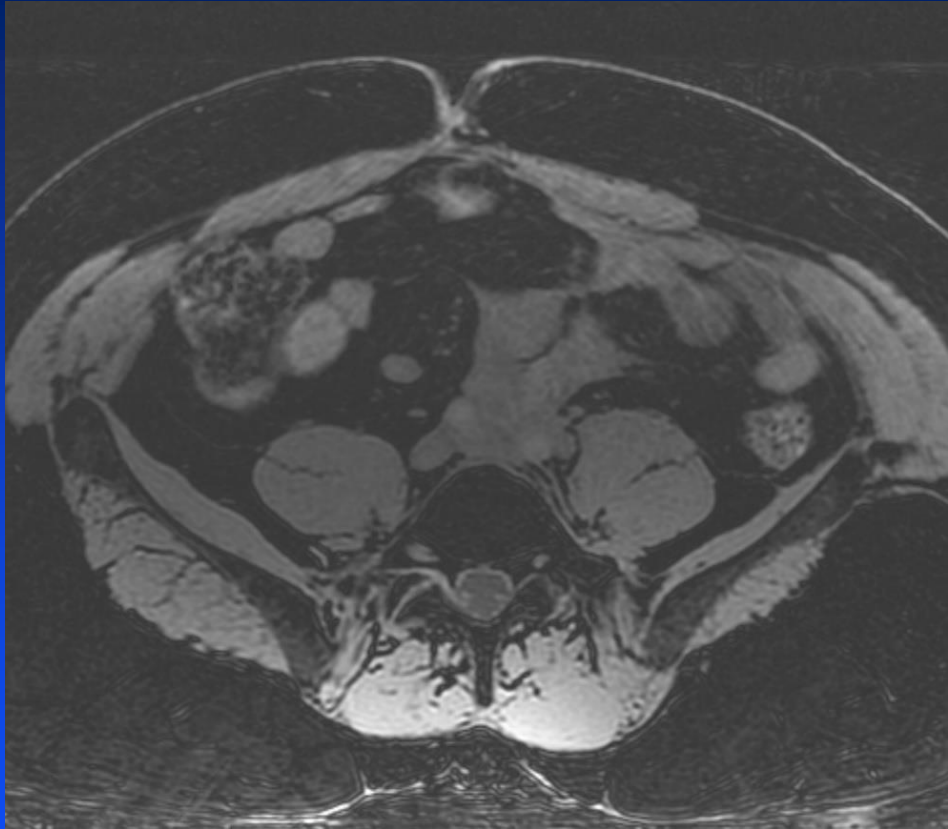




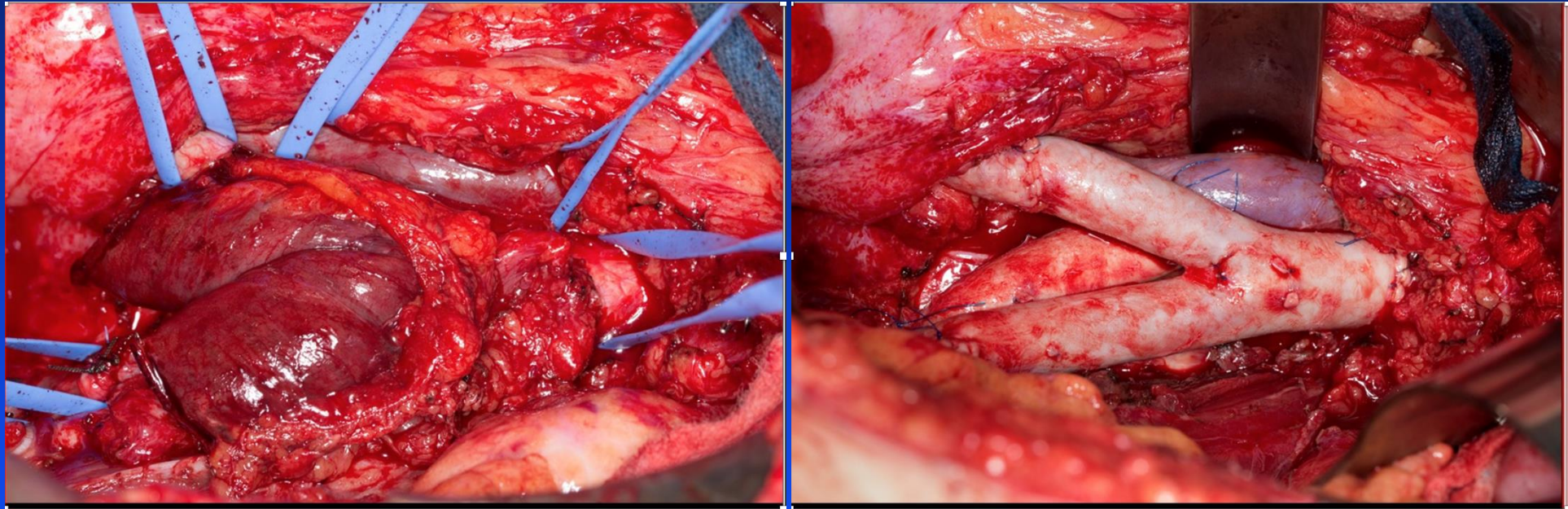
Aortoiliac Involvement

Case 1: 45 yr. male with recurrent rectal cancer after LAR
involving Aorta

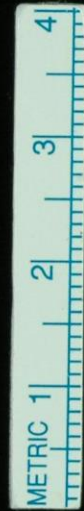
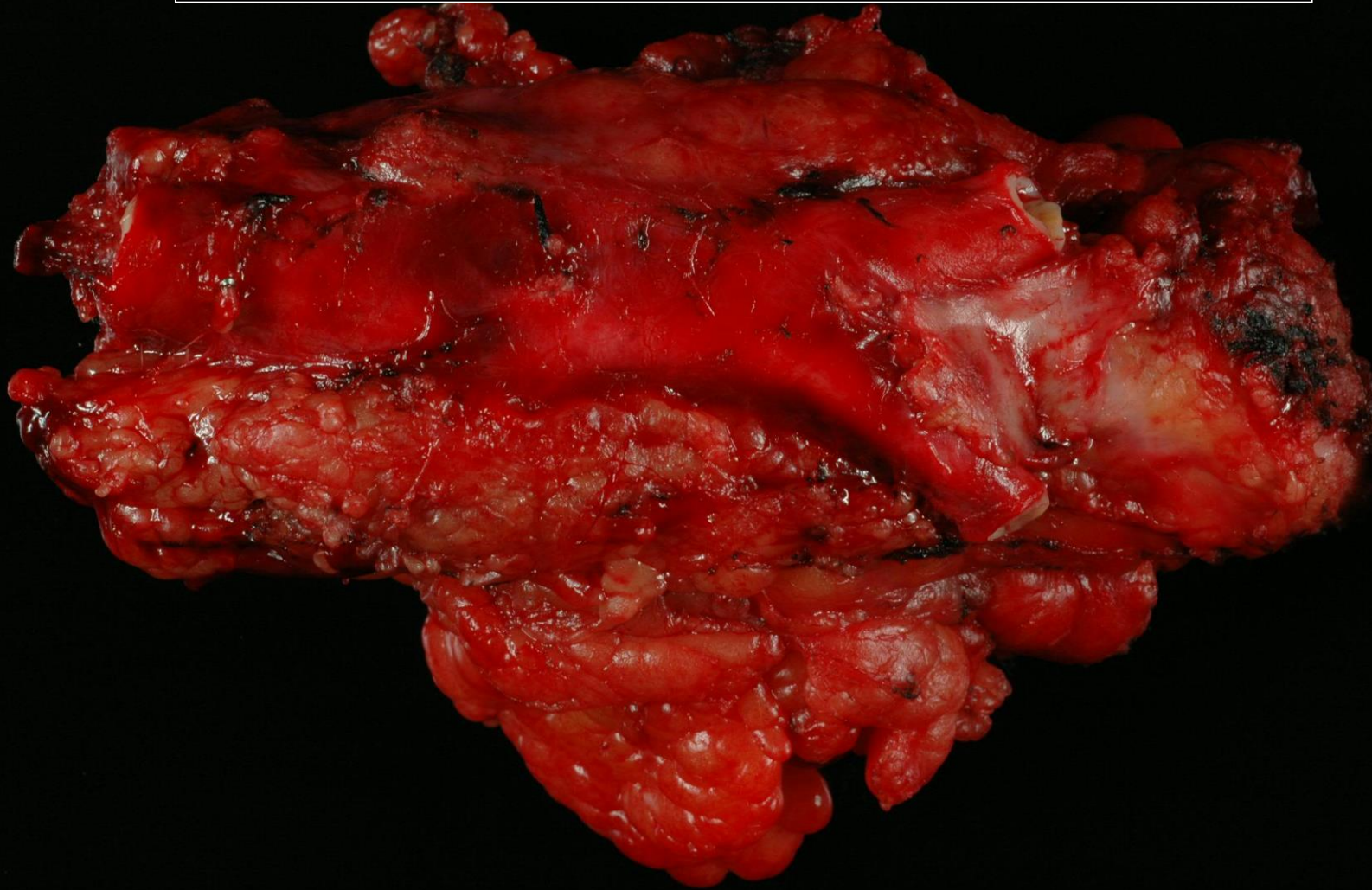
45 yo male recurrent rectal cancer after LAR



Intraoperative Findings



45 yo male recurrent rectal after LAR

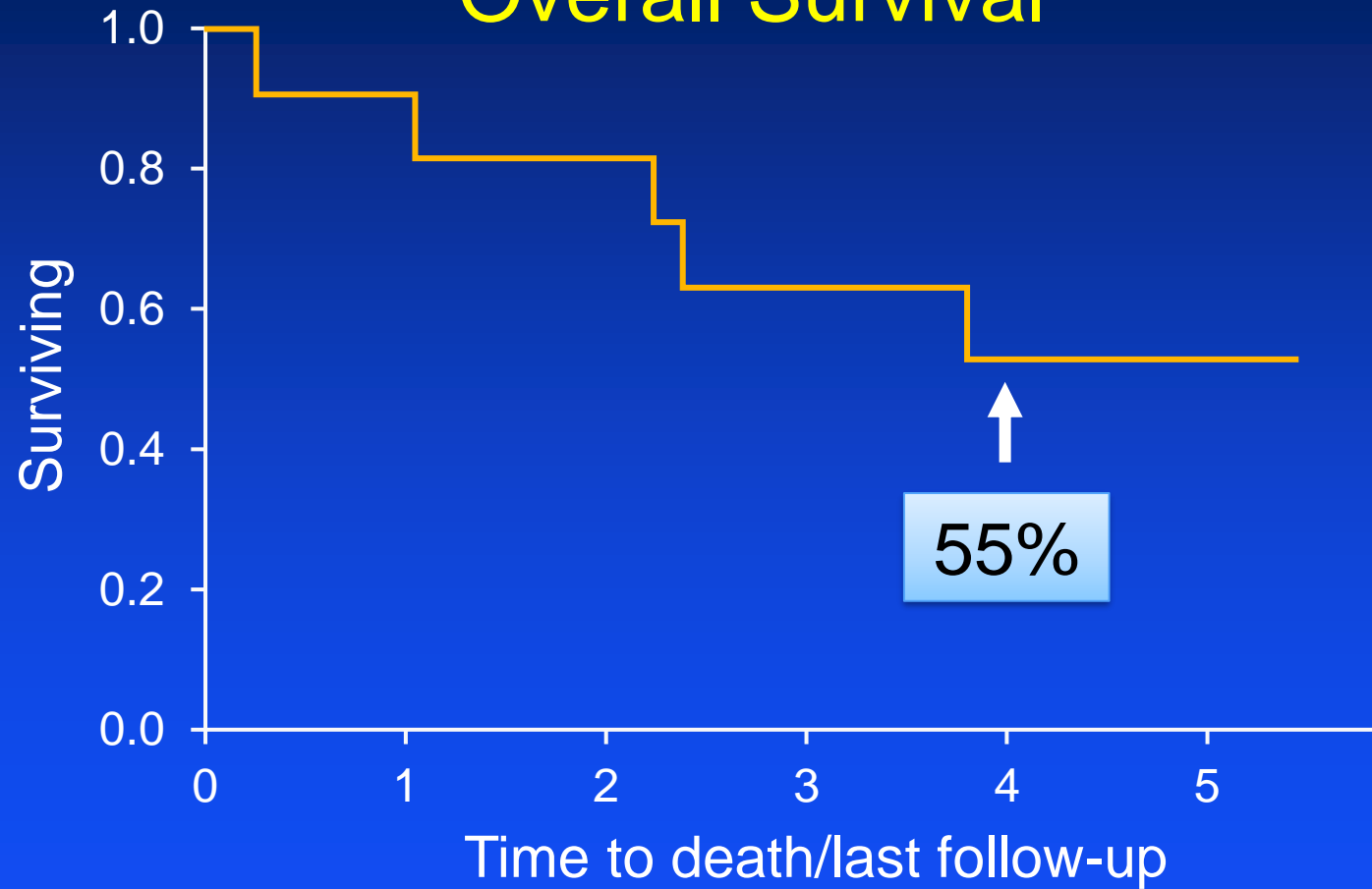


30-Day Postoperative Complications

Complications	Pts
Mortality	0
Morbidity	75%
Clavien grade <3	90%
Graft patency	100%
Graft infections	0

Abdelsattar et al: Dis Colon Rectum 56:711, 2013

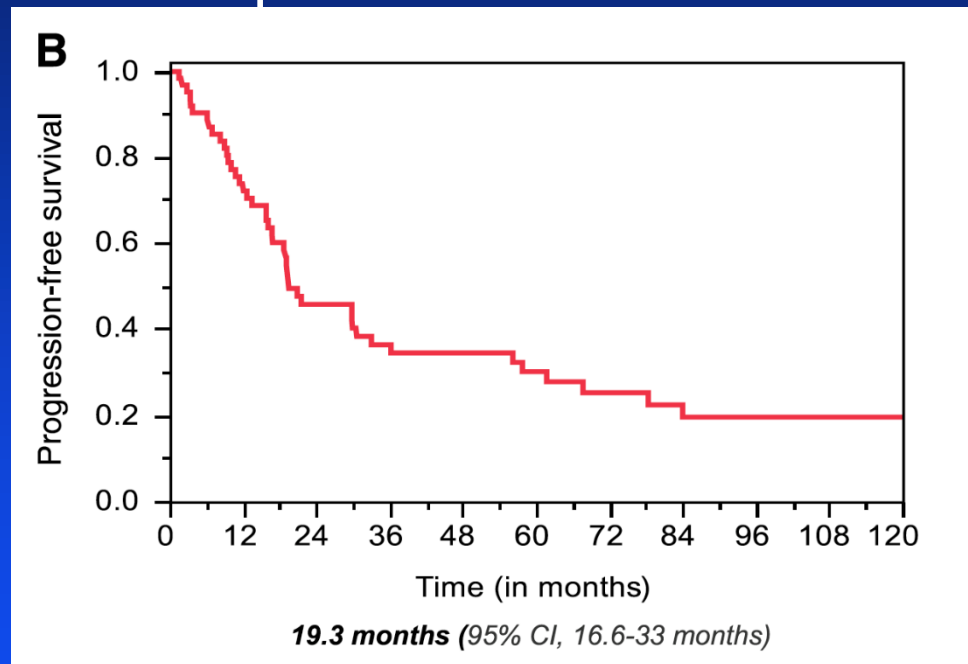
Overall Survival



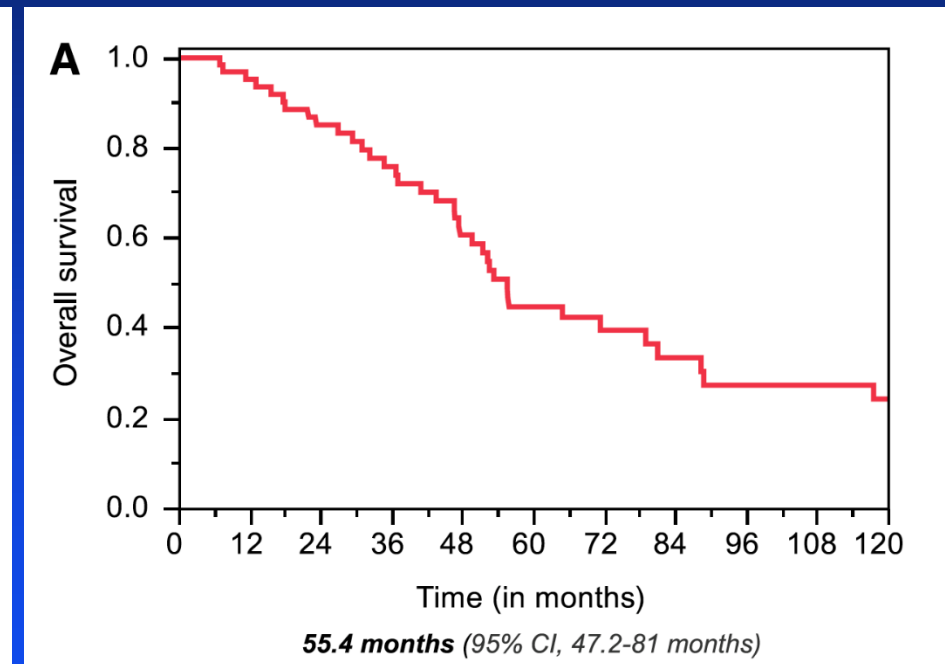
Abdelsattar et al: Dis Colon Rectum 56:711, 2013

Isolated Abdominal Nodal Metastasis

40% Never
Experience Recurrence



45% Five Year Survival

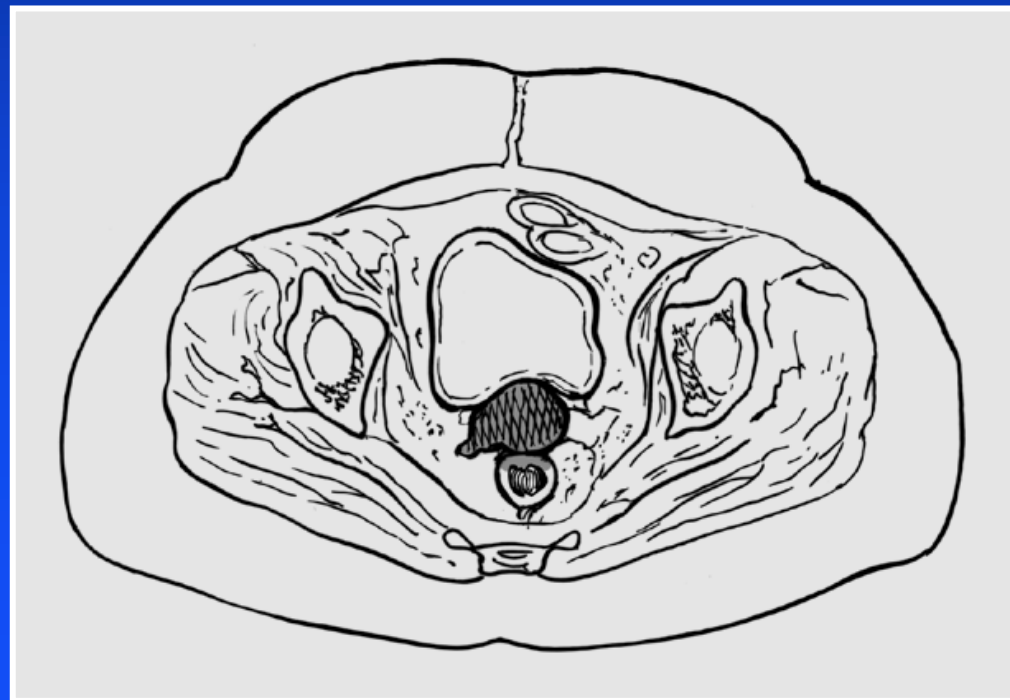


A Curative-Intent Trimodality Approach for Isolated Abdominal Nodal Metastases in Metastatic Colorectal Cancer: Update of a Single-Institutional Experience

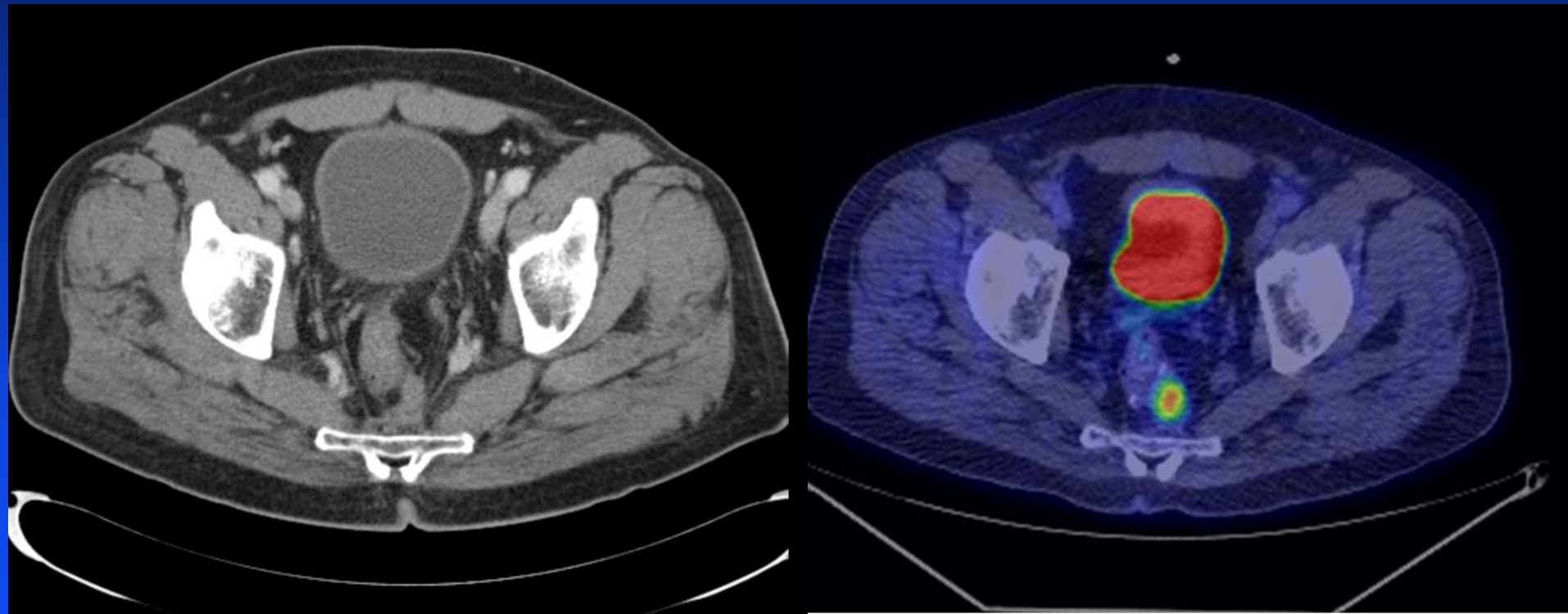
BENNY JOHNSON,^a ZHAOHUI JIN,^a MICHAEL G. HADDOCK,^b CHRISTOPHER L. HALLEMEIER,^b JAMES A. MARTENSON,^b RORY L. SMOOT,^{b,c} DAVID W. LARSON,^c ERIC J. DOZOIS,^c DAVID M. NAGORNEY,^c AXEL GROTHEY^a

The Flavors of Bad Disease

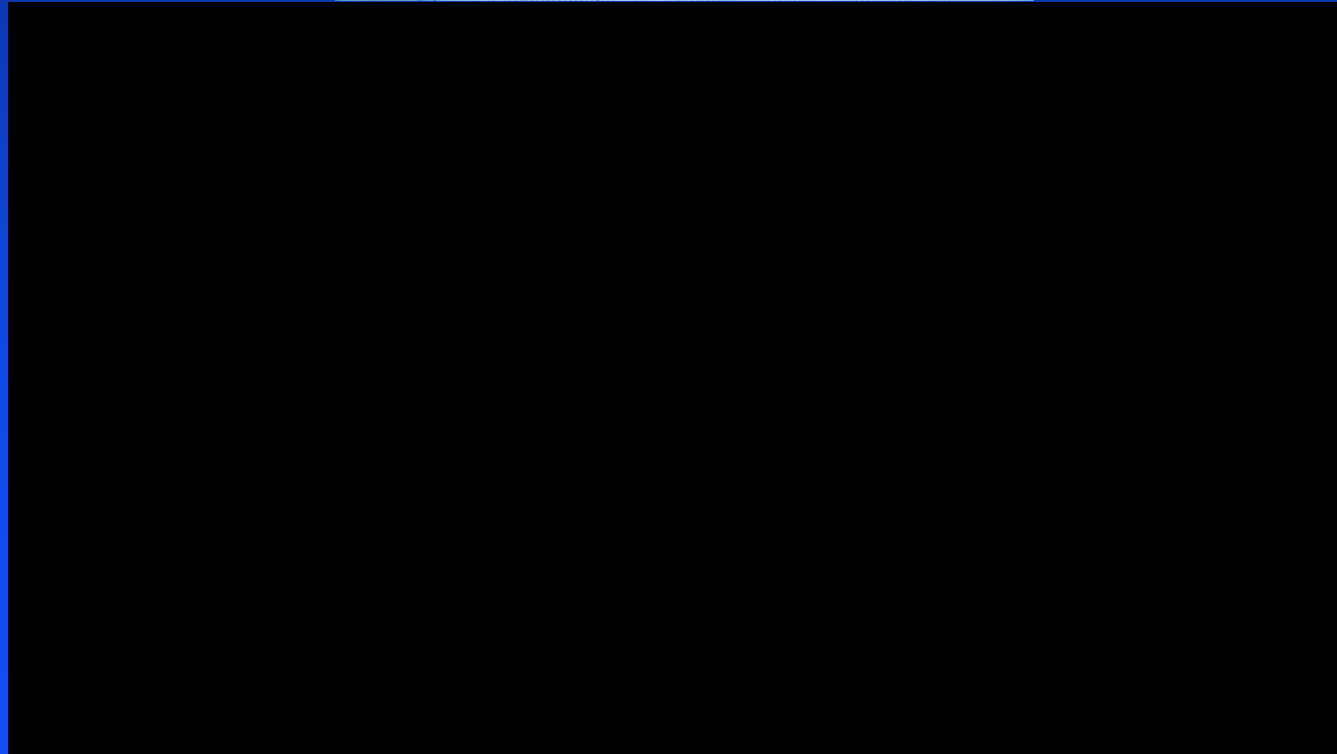
Case 2: Central Recurrence



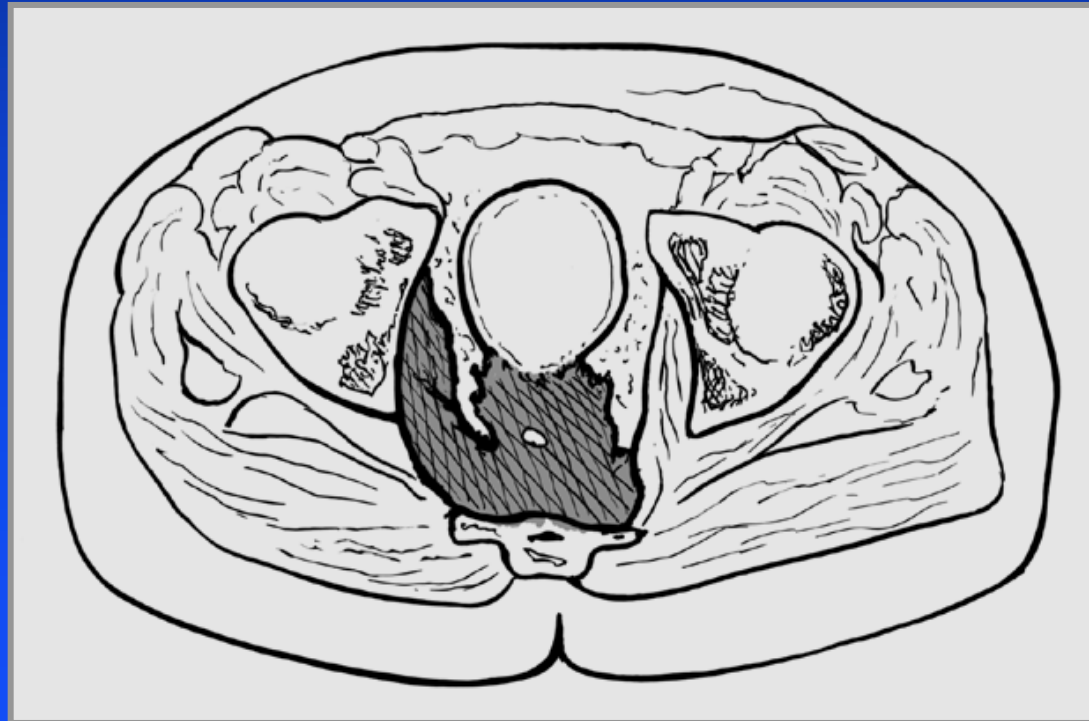
Patient S/P LAR with Local Recurrence



Robotic approach combined with IORT



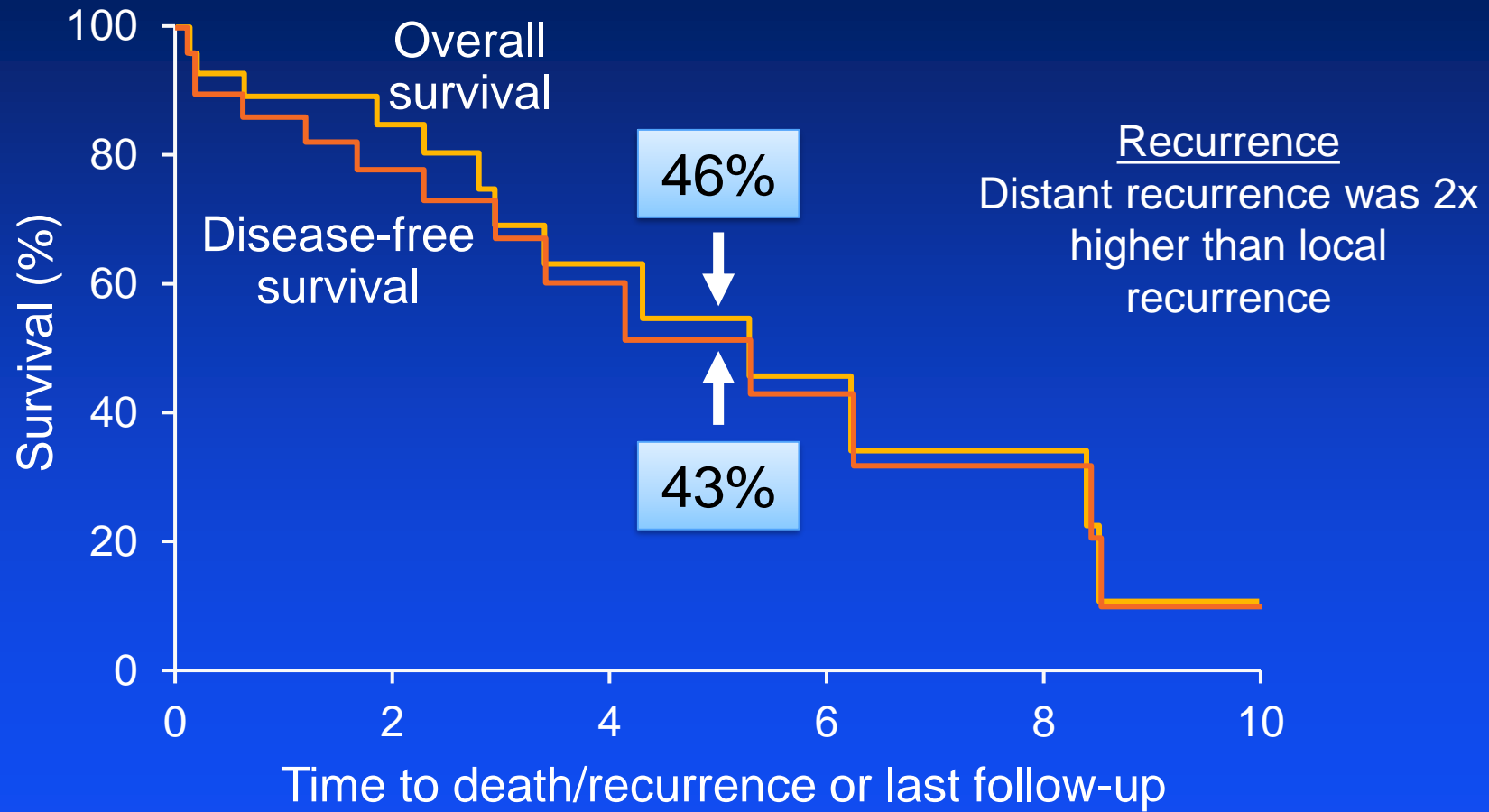
Complex Resection



Considerations for Major Bony Resection

- No metastatic disease (PET)
- Invasion of Bone
 - **Abutment**
 - **Subperiosteal** or unicortical dissection, IORT
 - **Invasion = Resection**

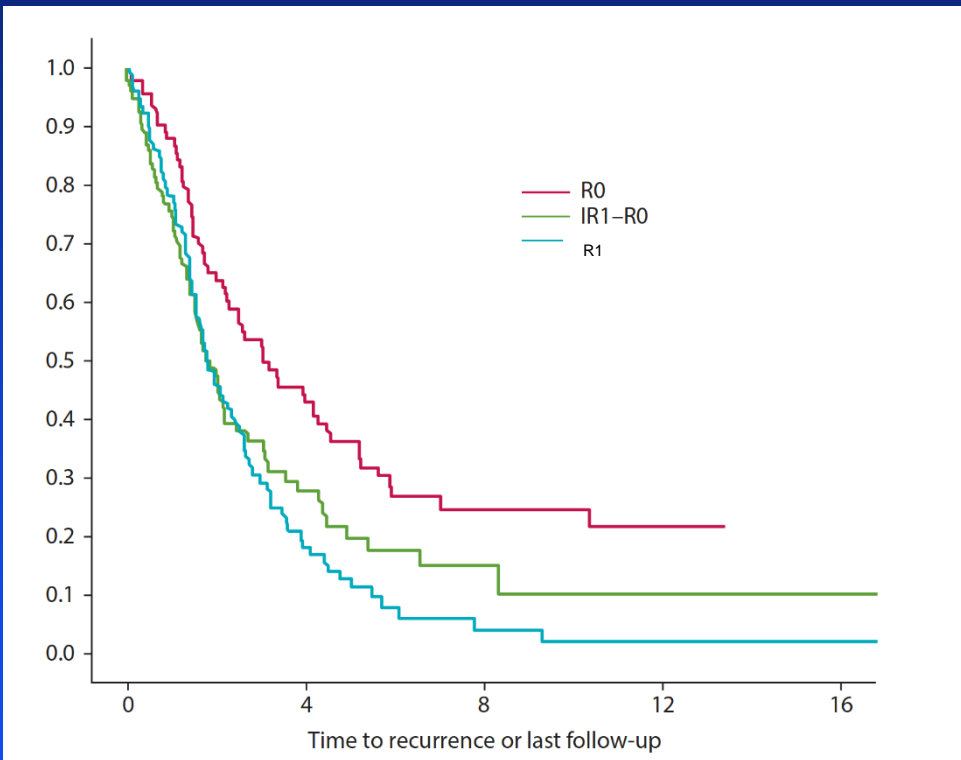
Survival



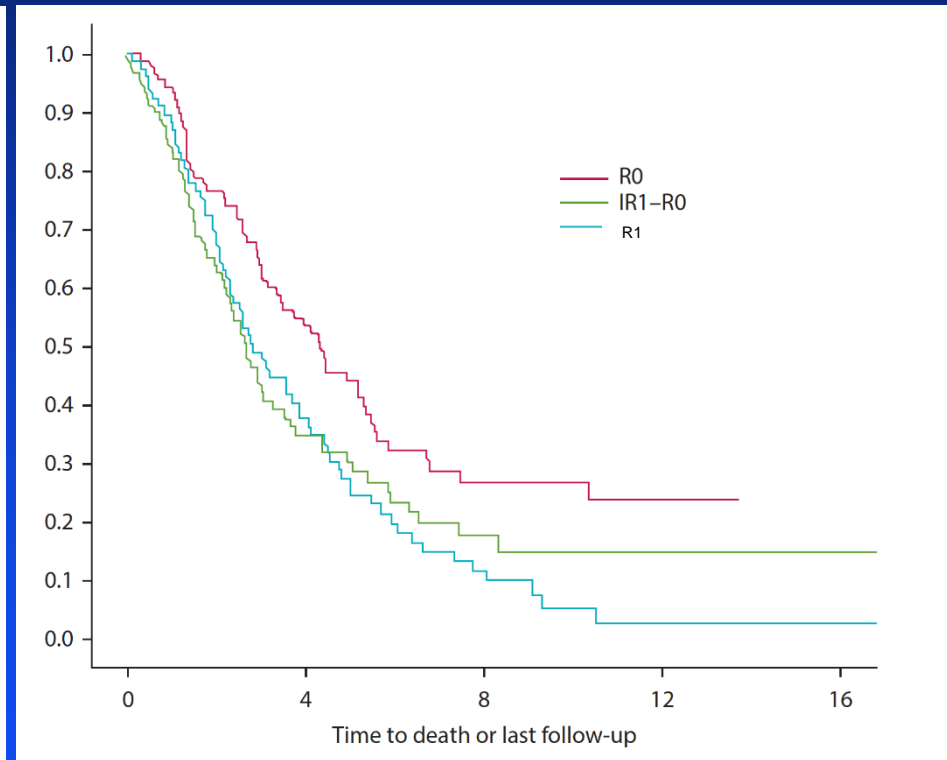
Colibaseanu et al: DCR 57:47, 2014

Make Sure you get an R0 the First Time

Disease Free Survival



Overall Survival



Re-resection of Microscopically Positive Margins Found on Intraoperative Frozen Section Analysis Does Not Result in a Survival Benefit in Patients Undergoing Surgery and Intraoperative Radiation Therapy for Locally Recurrent Rectal Cancer

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Kellie L. Mathis, M.D., M.Sc.¹ • Fabian Grass, M.D.³ • Jennifer A. Yonkus, M.D.²
Christopher L. Hallemeier, M.D.⁴ • Michael G. Haddock, M.D.¹
Randell P. Graham, M.B.B.S.⁵ • Amit Merchea, M.D.⁶ • Dorin T. Colibaseanu, M.D.⁶
Nitin Mishra, M.B.B.S., M.S., M.P.H.⁷ • Scott R. Kelley, M.D., M.B.A.²
David W. Larson, M.D., M.B.A.² • Eric J. Dozois, M.D.²



Side Wall Involvement

Case 3: 55 yr old male with right pelvic side wall involvement

Complex Resection of Pelvic Side Wall

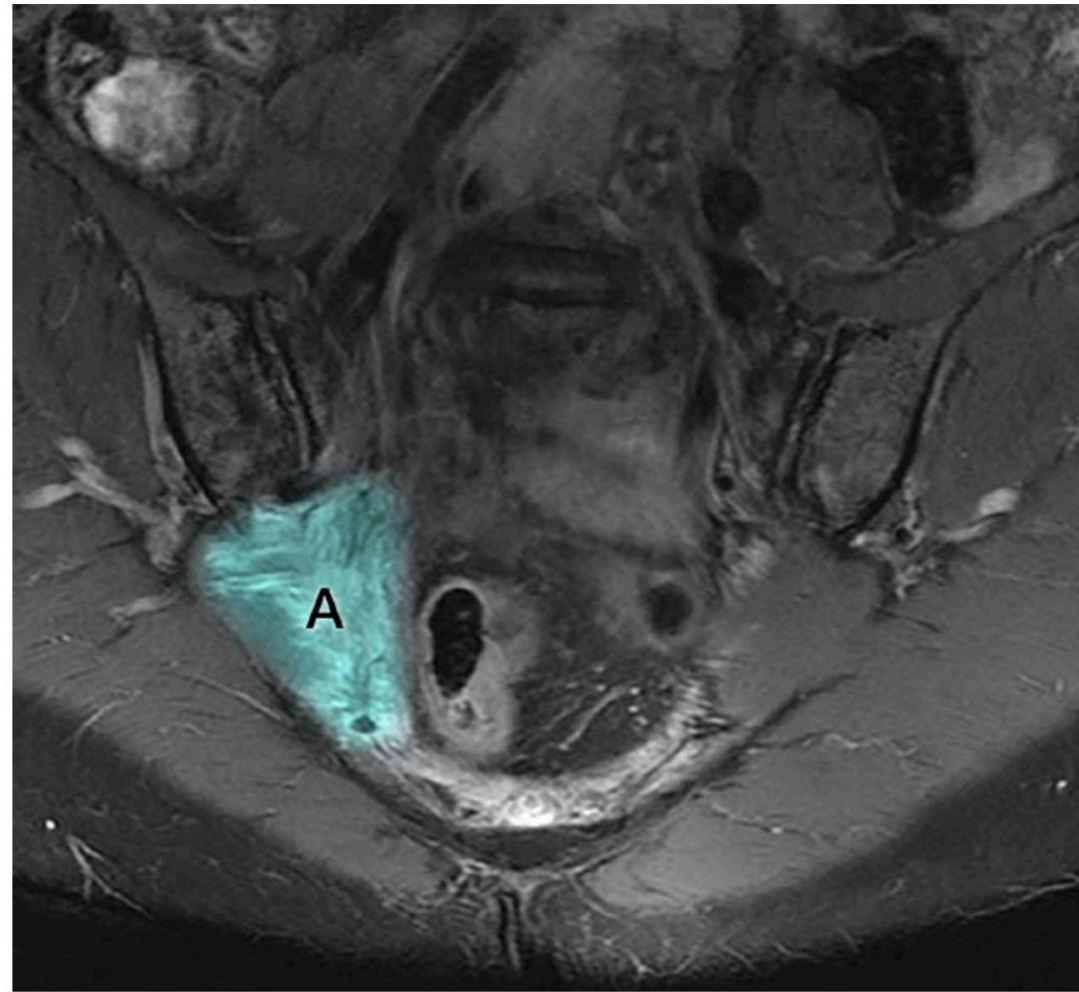
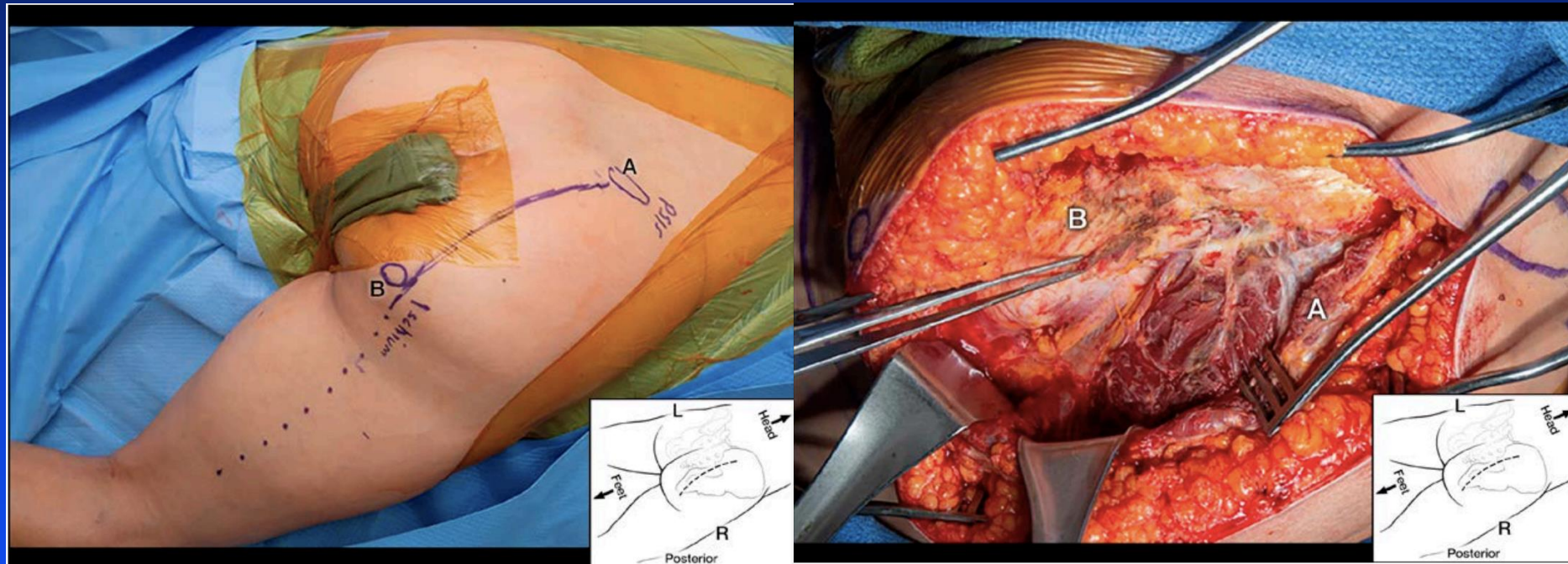


FIGURE 1. MRI of the pelvis showing a locally recurrent rectal cancer involving the right pelvic side wall (A; highlighted in green).

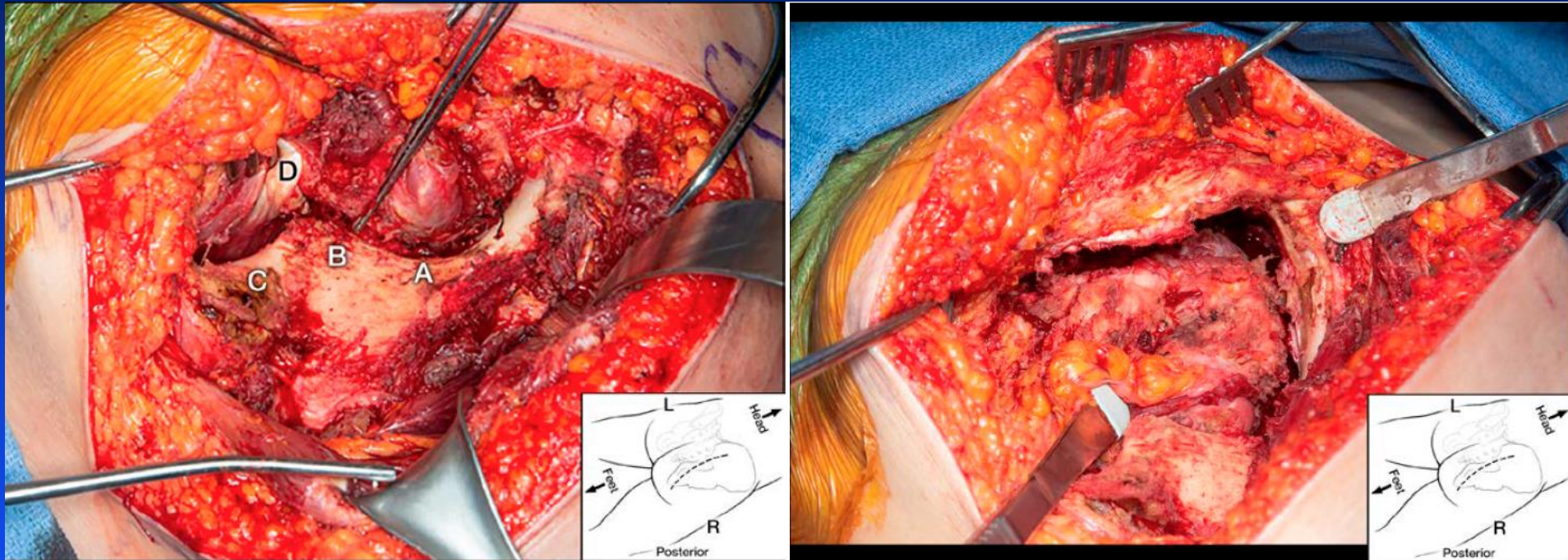
Posterior First Two Stage Approach



Reflecting the gluteus laterally off of the the greater and lesser sciatic foramina

Posterior First Two Stage Approach

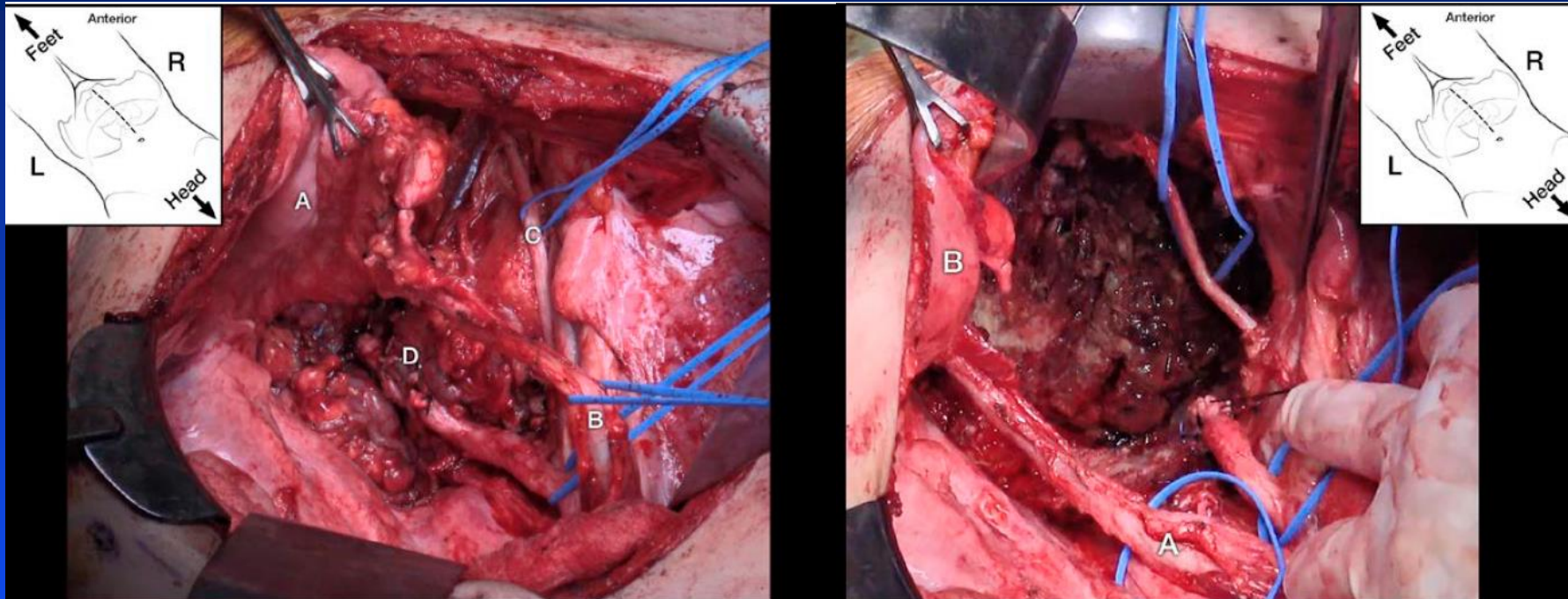
Greater Sciatic notch (A); Ischial Spine (B); Lesser Notch (C)



Subperiosteal Dissection of the Pelvic Sidewall off the Bony Attachments

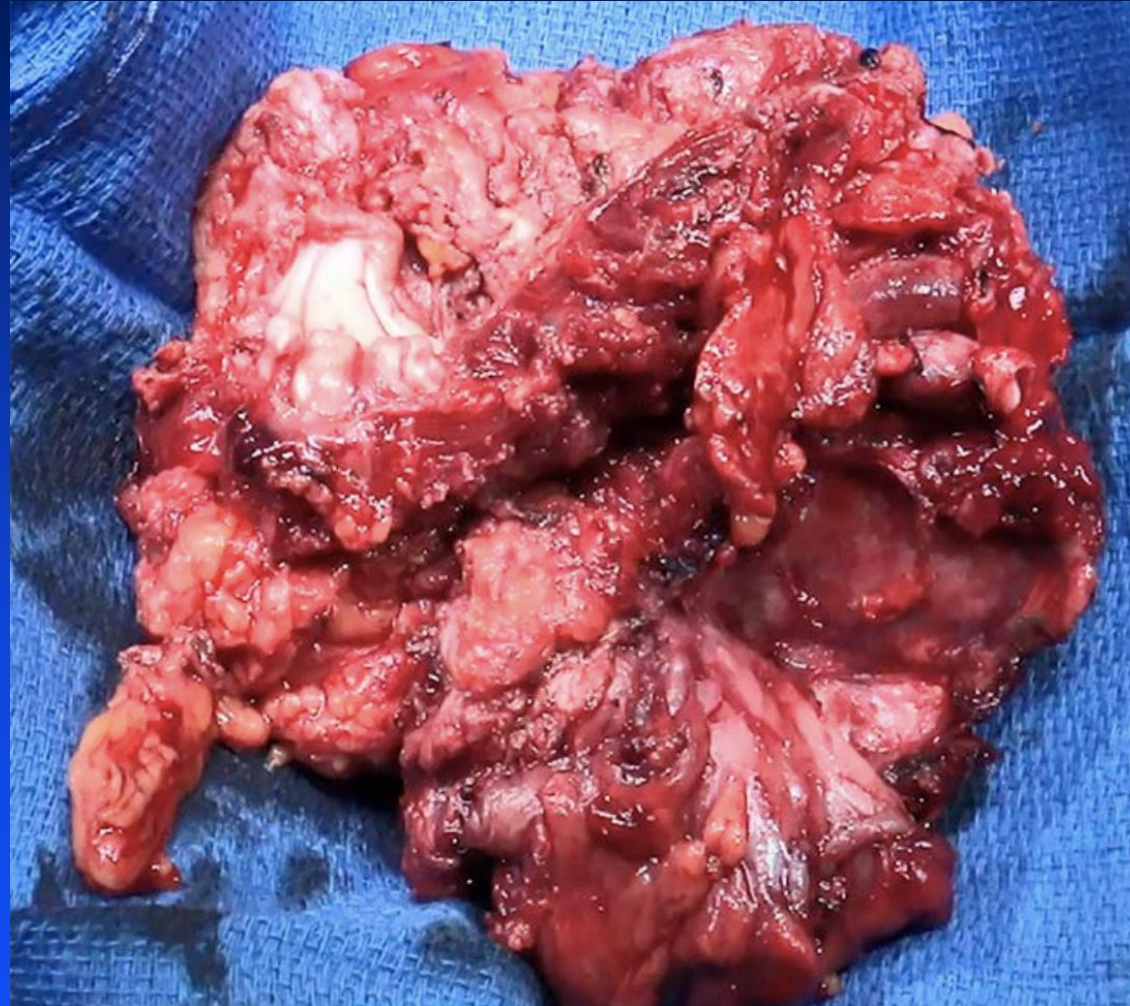
Anterior Secondary: Two Stage Approach

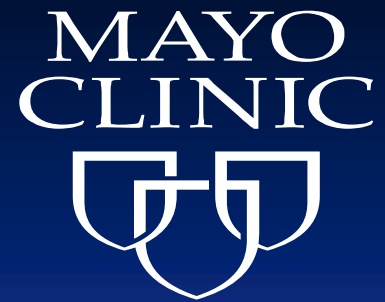
Medialize the Bladder (A) and Ligate internal Iliac branches (D), Obturator nerve (C)



Bladder and ureter (A,B) protected,
Tumor released from the deep lateral pelvic space

Tumor removed on Block





Limb Salvage or Not

Internal vs External Hemipelvectomy

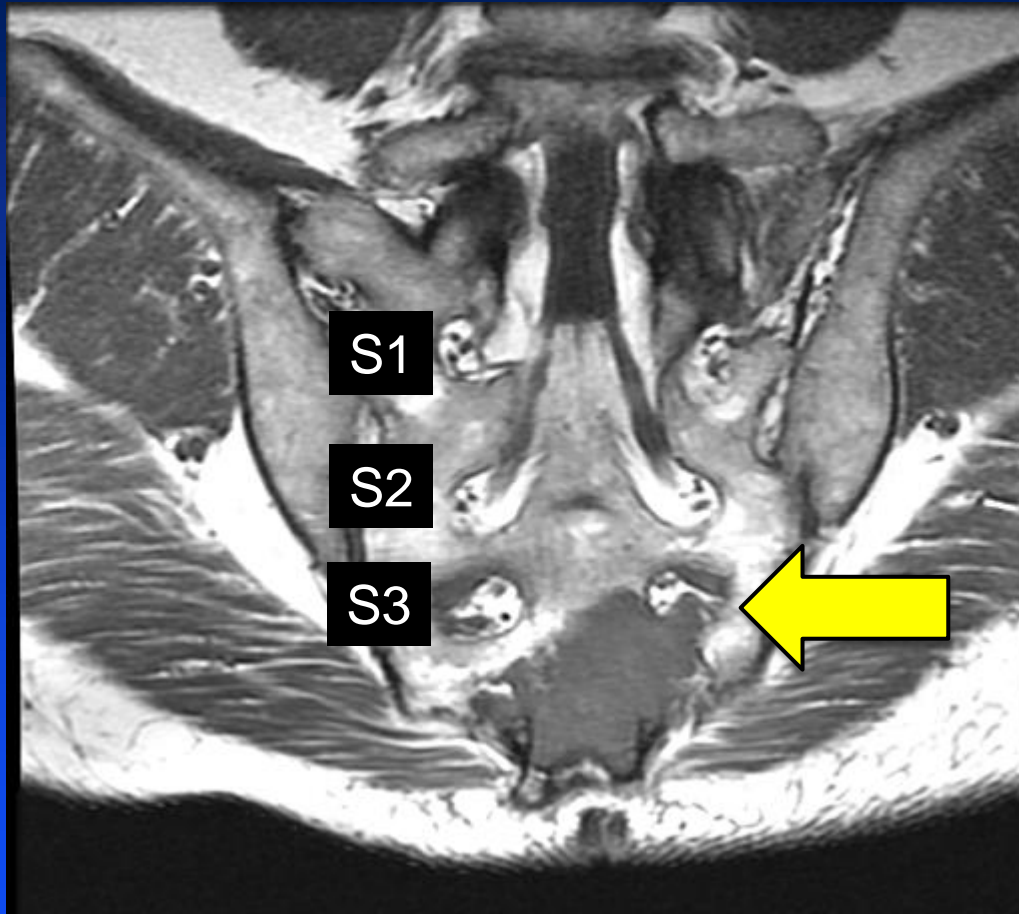
- **Function of limb based on**
 - Lumbosacral trunk / sciatic nerve / Femoral nerve
 - Iliac vessels
 - Acetabulum
- Loss of 1/3: Well compensated without amputation
- Loss of 2/3: Amputation provides better outcome



L5-S3 Involvement

Case 4: 20 yr. old male with left sided L5-S3 pelvic side wall involvement

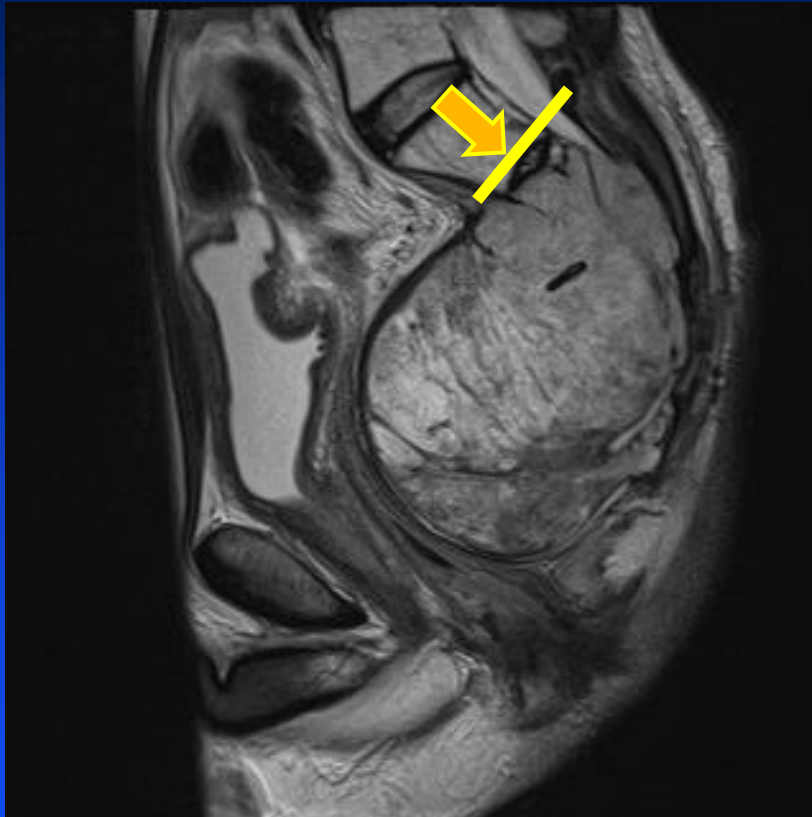
MR Imaging



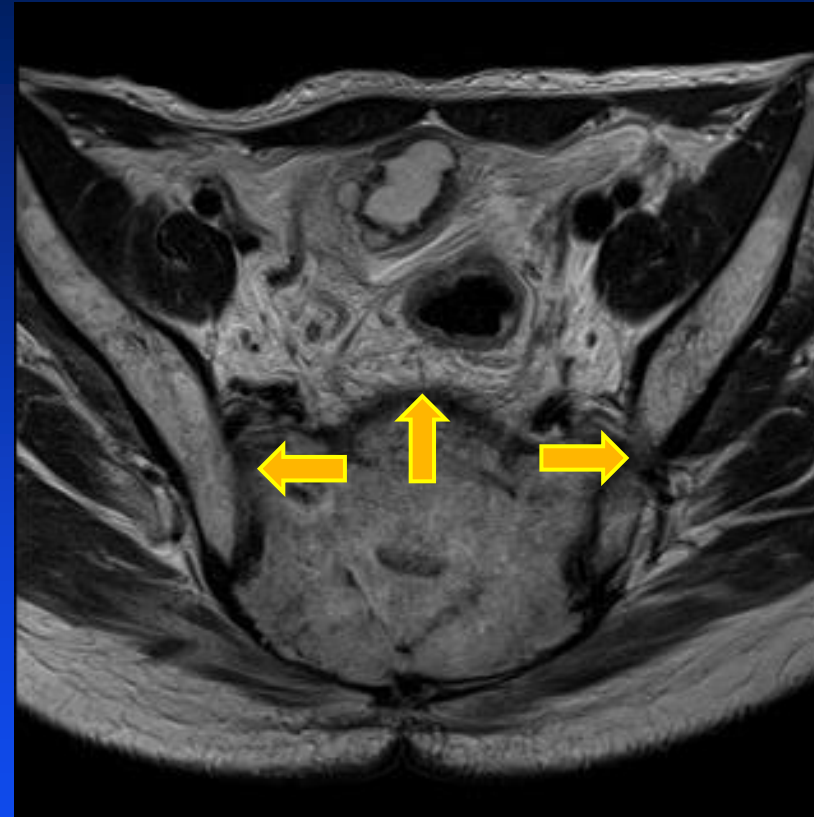
Tumor invasion
of left S3
neuroforamina

Coronal oblique images show
nerve root involvement

Pelvic Imaging – Exclusively MRI

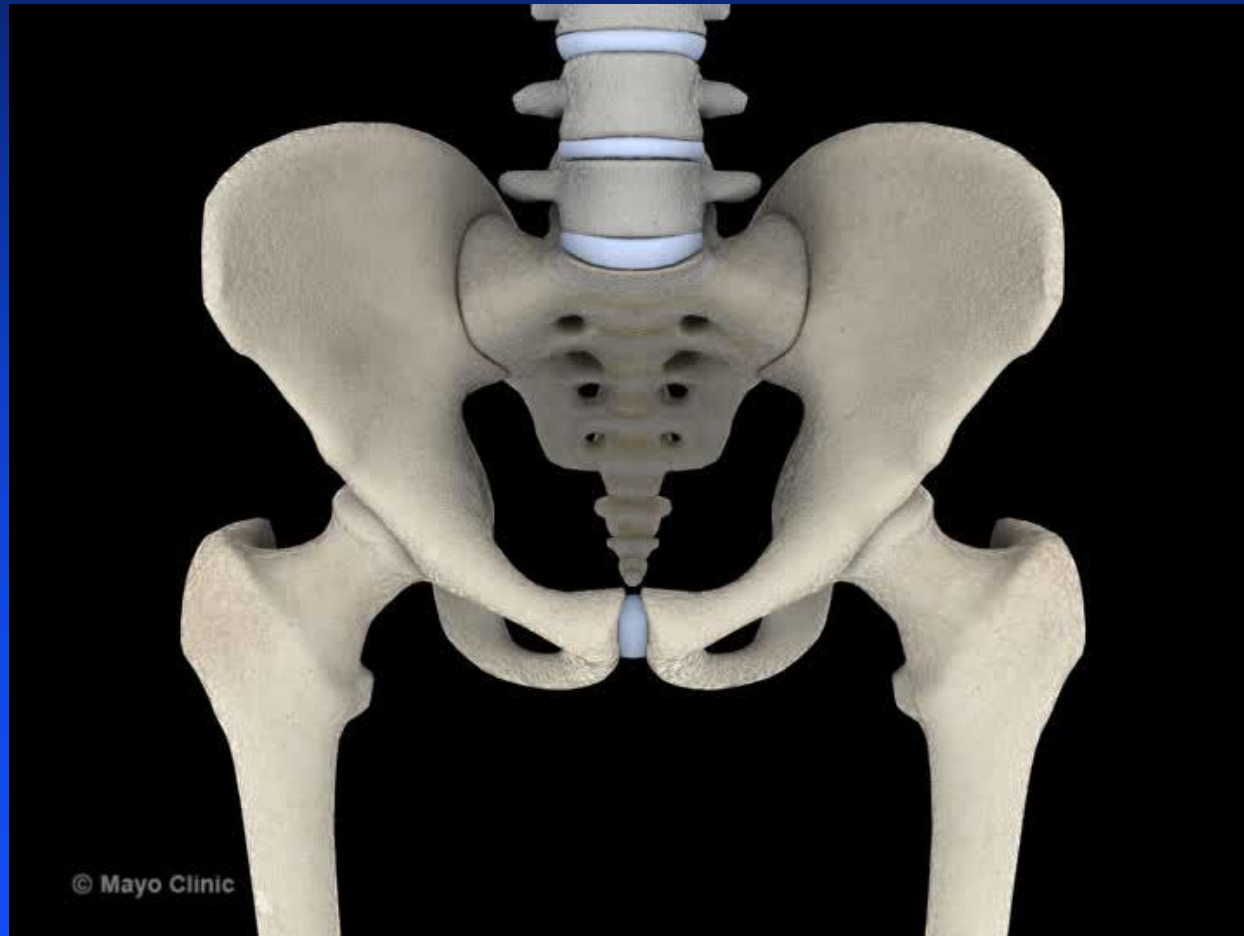


Sagittal images shows cephalad extension

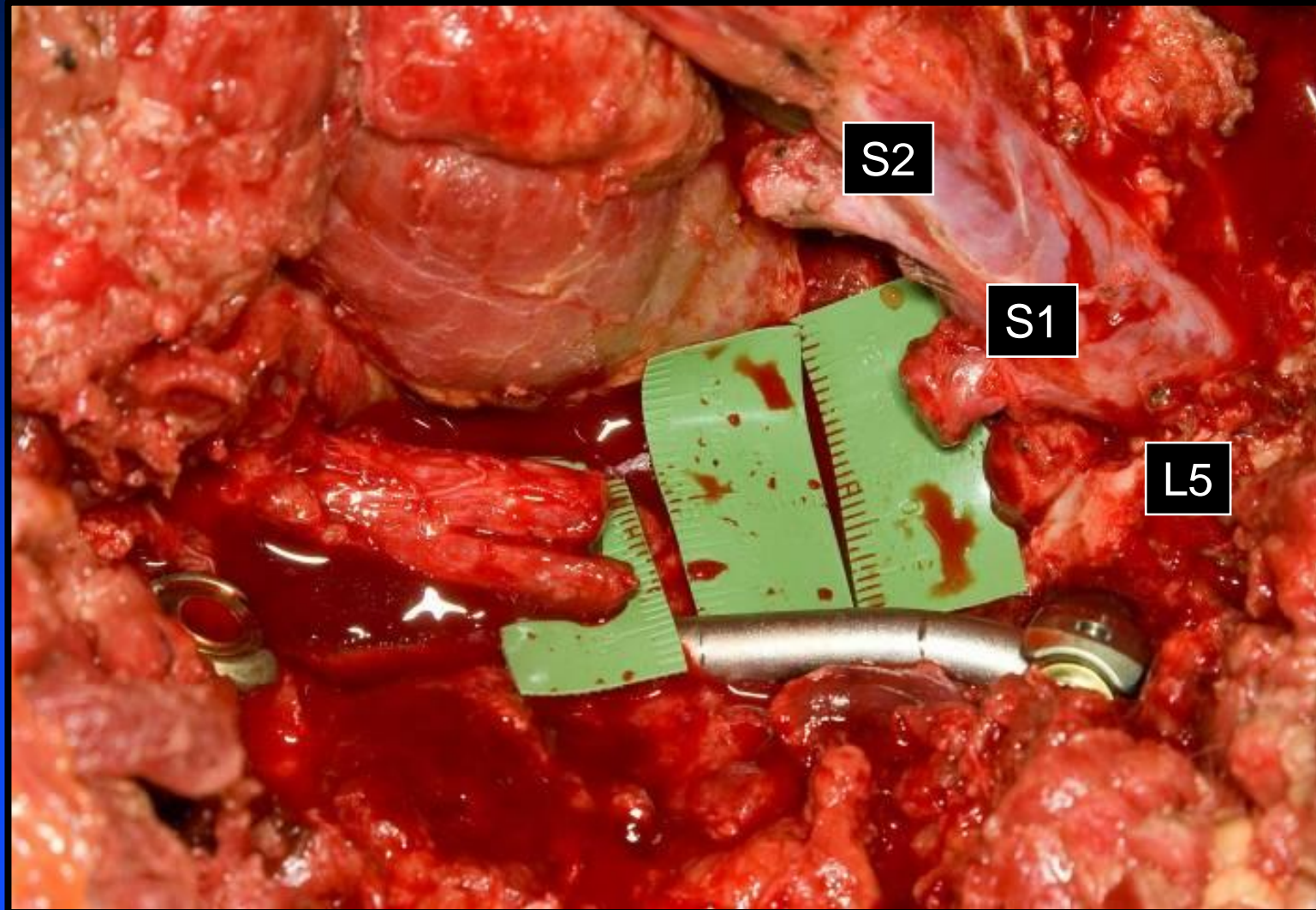


Axial images shows soft tissue extension, visceral, and iliac involvement.

Types of Boney Stabilization

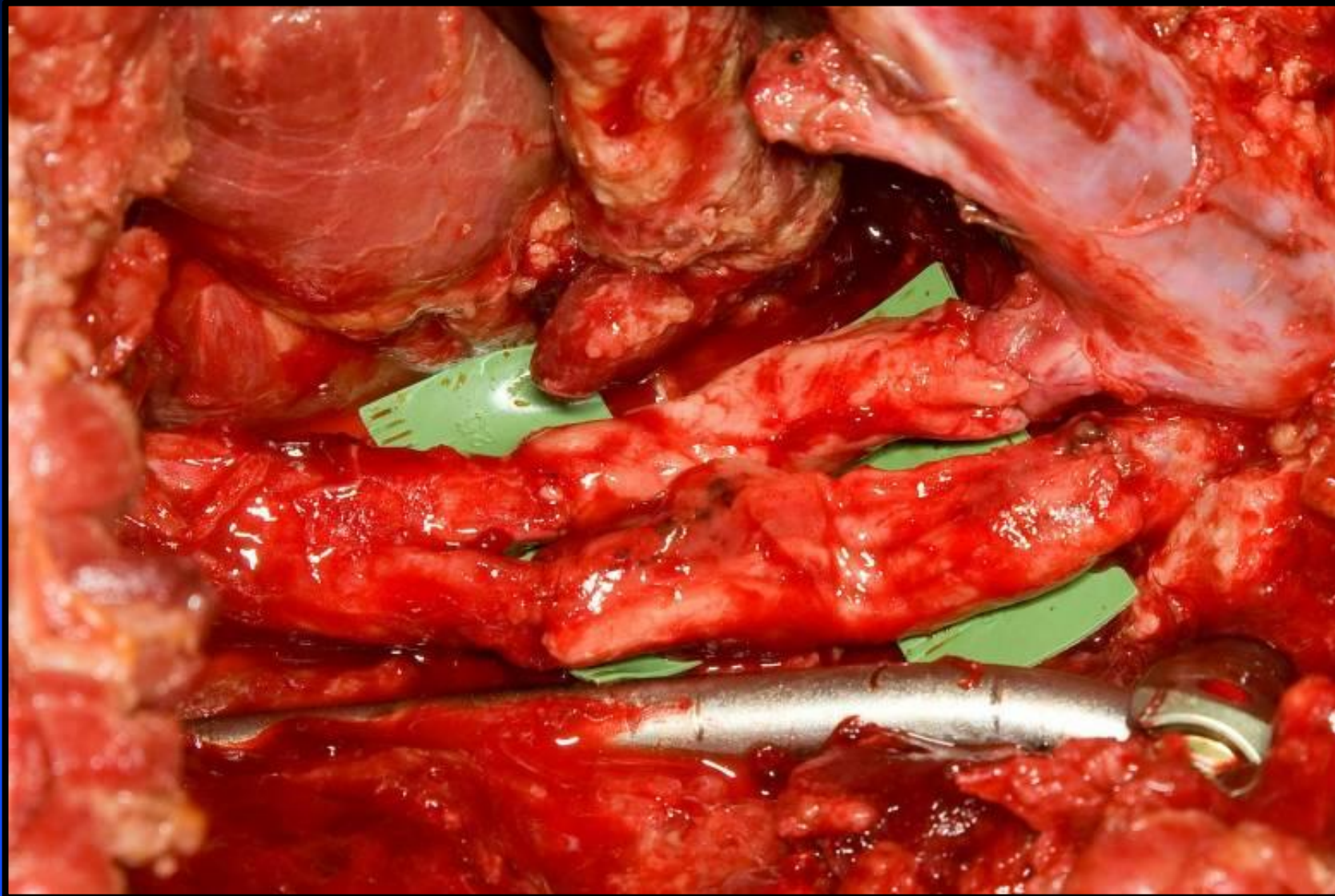


Nerve Grafting – Can we restore function?



Hemi-sacrectomy + medial ilium resection

Nerve Grafting – Can we restore function?



Sural nerve grafting; L5 and S1

Future Direction

Nerve Grafting – 9 months PO

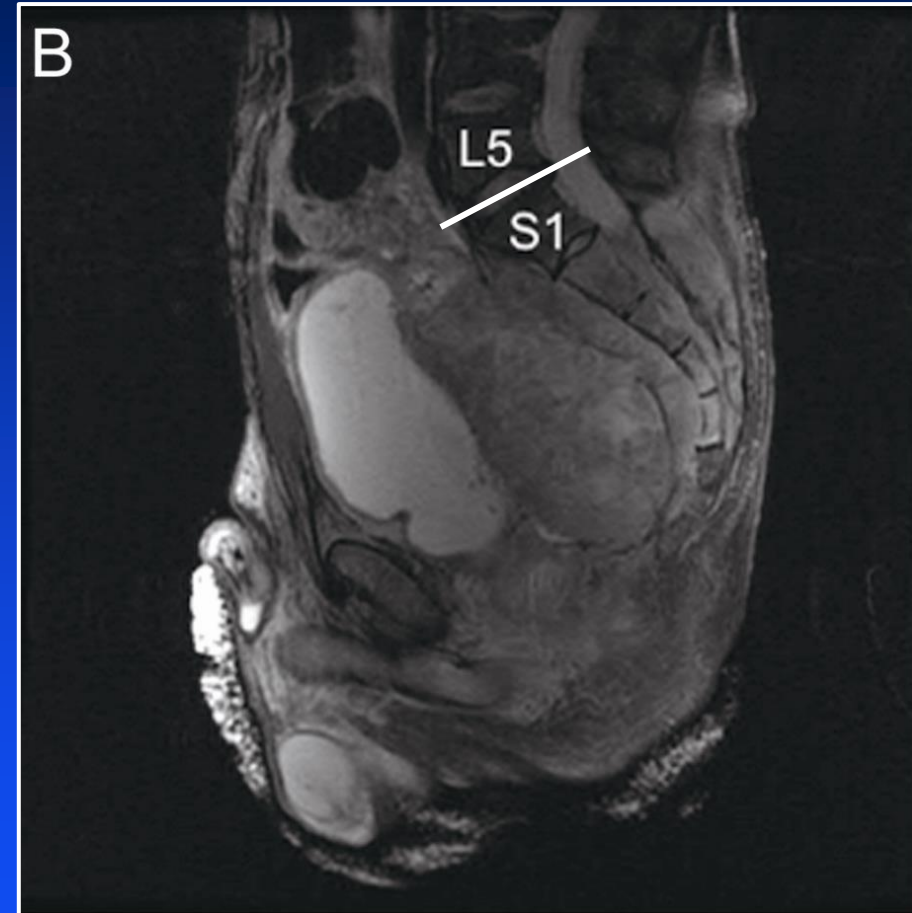
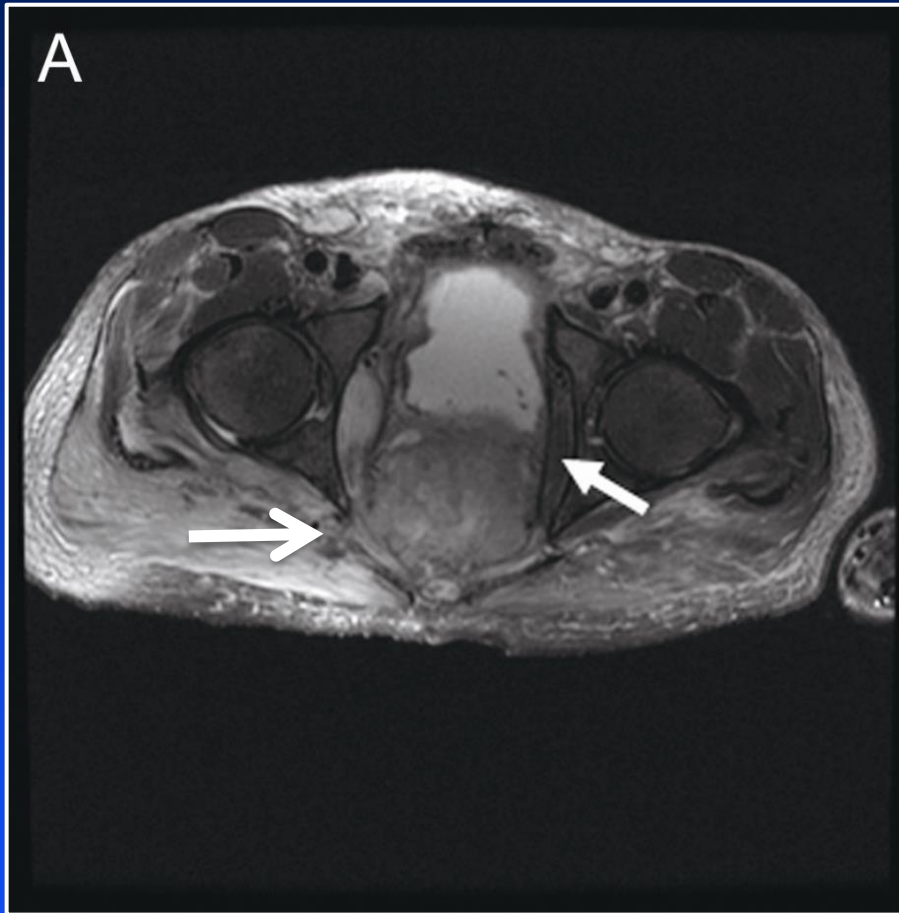




L5 to Bladder Involvement

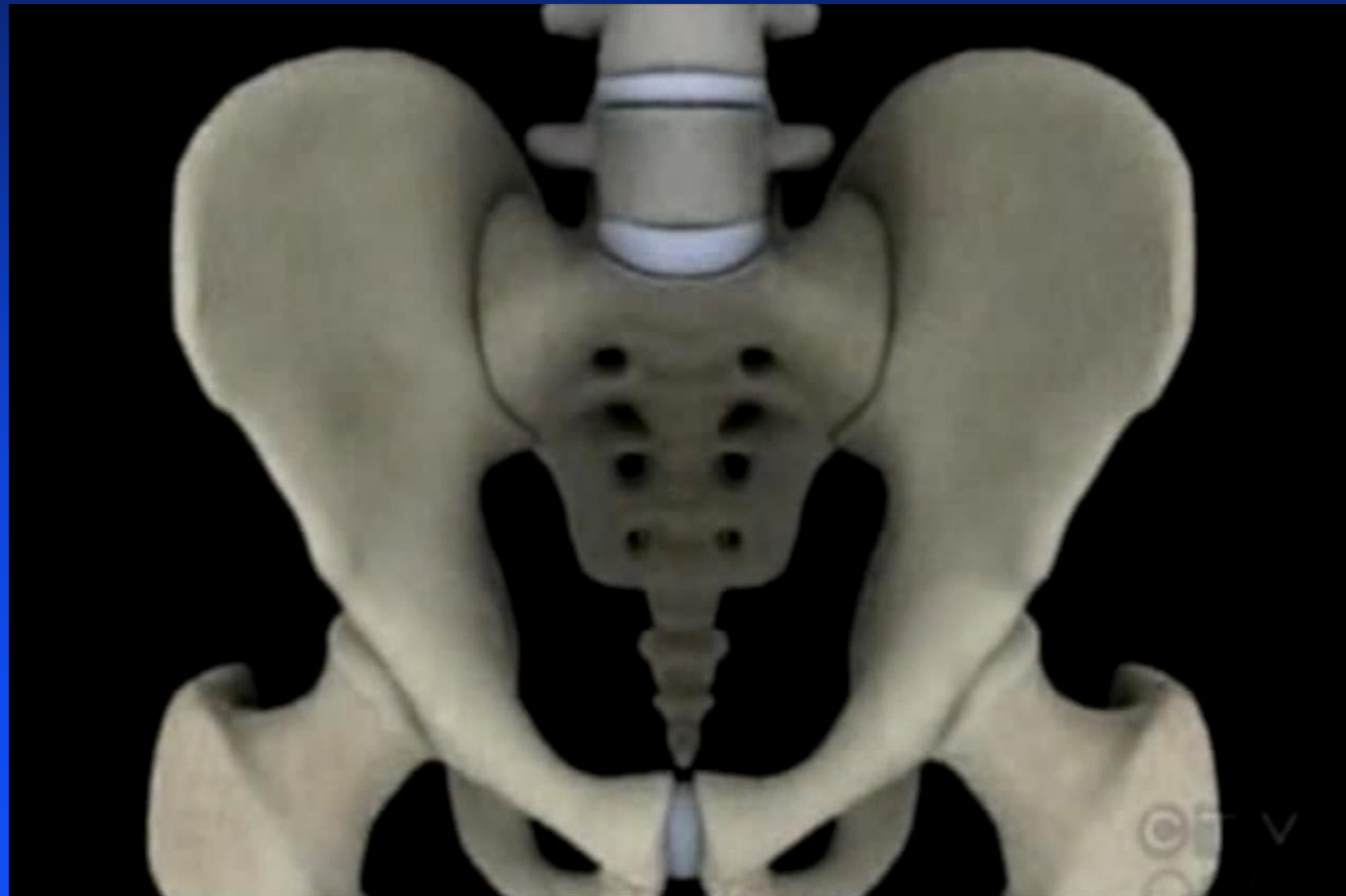
Case 5: 27 yr old Female with L5 to Bladder involvement

Extended Sacropelvic Resection

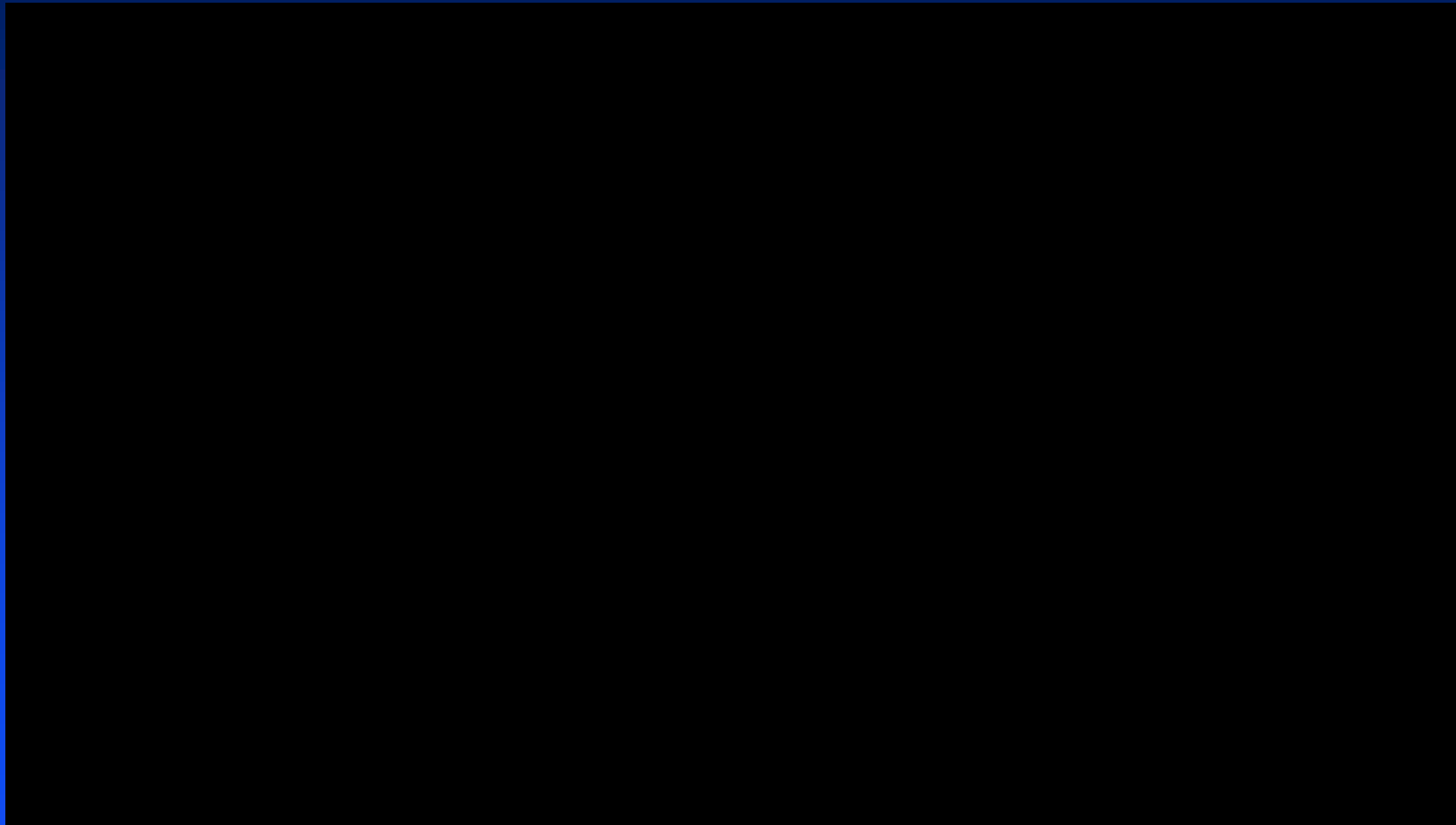


Pelvic Sidewall through sciatic notch, bladder, up to L5

Types of Boney Stabilization

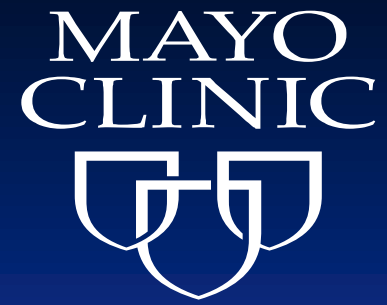


Aggressive Surgery can Lead to Life



Conclusion

- Are there Limits to Surgical Resection?
 - R0 Resection
 - Long term Survival nearing 50%
 - Reasonable Quality of Life



Thank You