

LAPAROSCOPIC HERNIORRHAPHY USING PORCINE SMALL INTESTINE SUBMUCOSA (SIS) MESH

5 YEAR FOLLOW UP

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Introduction

- Naturally occurring **S**mall **I**ntestinal **S**ubmucosa from pig intestine
- Primarily a protein-collagen matrix which allows host cell incorporation and tissue remodeling
- Initially used as a graft material for arteries, veins, ligaments, dura, wound coverage, and urinary bladders
- Animal studies show it is effective for abdominal wall hernias
- Important to have capillary ingrowth which allows rebuilding of the damaged site with host tissue
- Biomaterial that does not encapsulate but gradually transforms
- FDA cleared
- No hernias developed with minimal adhesions
- Elicits a foreign body response with fibroblast replacement that is complete by 2 months without rejection
- Compared PPM to SIS in 12 dogs
- Compared favorably
- Mesh completely replaced by host tissue in 4 months
- None of the SIS grafts were infected at 30 days contrasted to infection in all ePFTE

Purpose

- To evaluate the long term results of SIS mesh in laparoscopic hernia repairs
- To assess the effects of SIS mesh with respect to ease of use, strength over a period of time and inflammatory response

Methods

- Prospective review started in August, 1999
- Follow up at 2 weeks, 6 weeks, 6 months, 1 year and yearly
- Per-primus hernias, smaller than 4 cm and above the scrotum
- Single surgeon and AESOP
- Experience of 870 lap hernia repairs
- Pre-peritoneal technique using a balloon
- LMA or GET + 30 ml ½% bupivacaine
- 11 mm Hasson + 2–5 mm cannulas, midline
- Uncut 7 x 10 cm, 4 ply, SIS mesh, myopectinate orifice, 5 tacks (starting 2005: 10 x 15 cm with holes)
- Outpatient (2 overnight)

Results

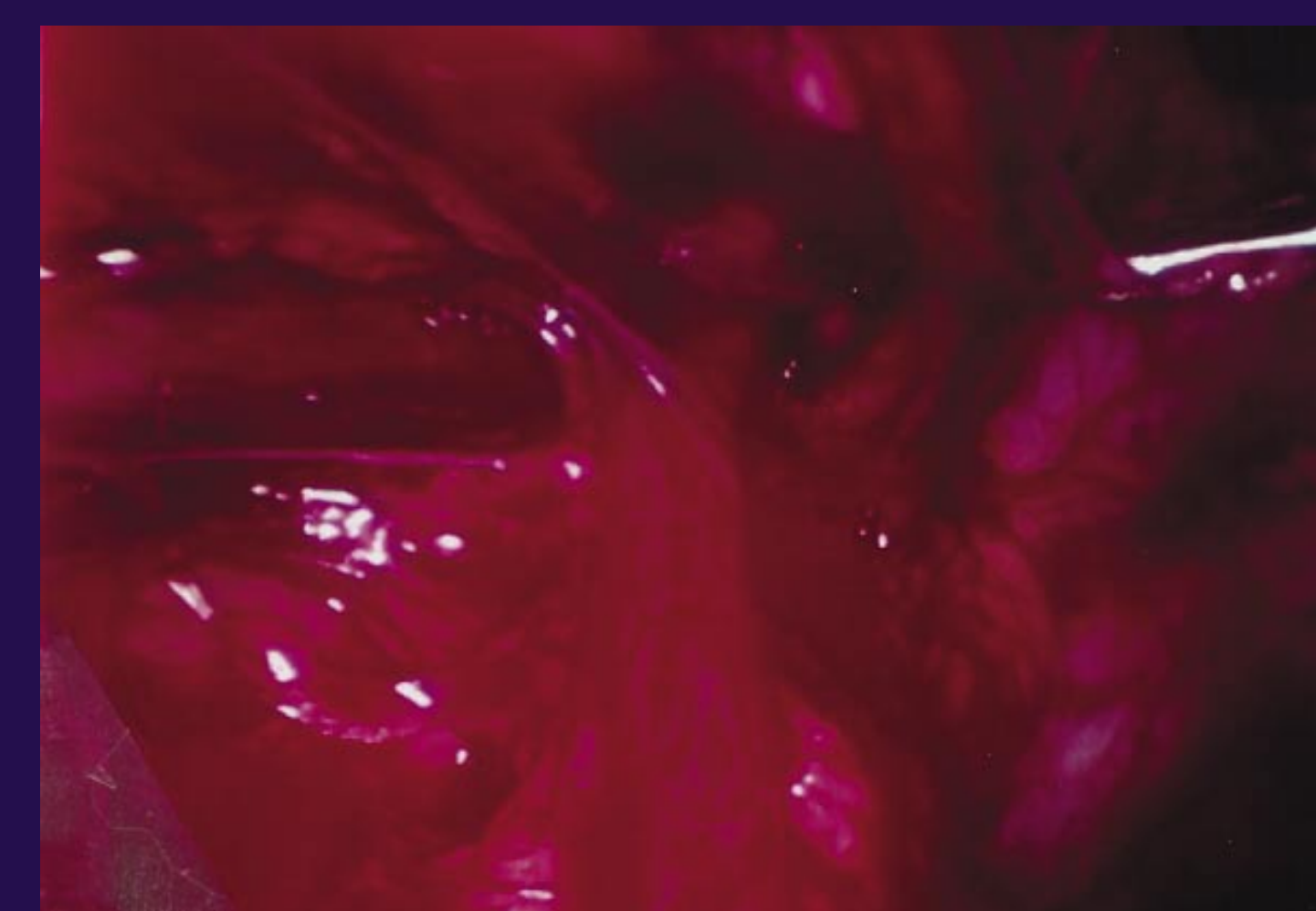
- 54 patients, 67 hernias, 8/99 to 2/05
- 34 men, 20 women
- Ages 18–69 years
- 16 direct, 48 indirect, 2 pantaloon, 1 fem
- OR time = 29 minutes (20–60 min)
- No infections

Results/Complications

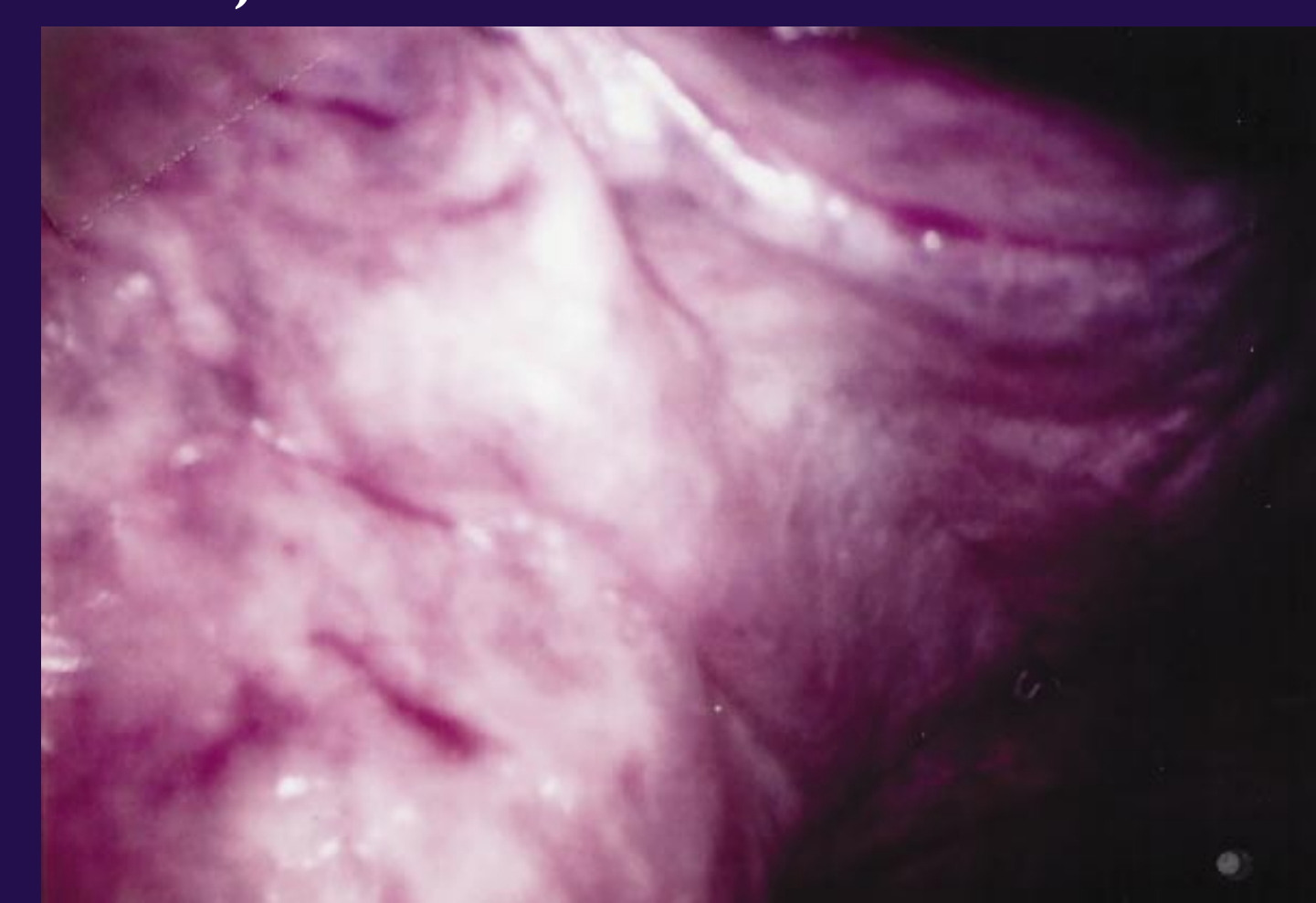
- Seromas=10, all resolved
 - Pain requiring COX-2/NSAID's=13
 - Swelling=5
 - Orchitis=4
 - Ecchymosis=3
 - Urine retention=2
 - 7 recurrences, 85% follow up
- Recurrence
- 10% recurrence rate (direct only)
 - 2-technical
 - No recurrence for Indirect Hernias
 - All recurrences had pain, swelling +/- seroma
 - Rejection? host vs graft reaction

Patient 1

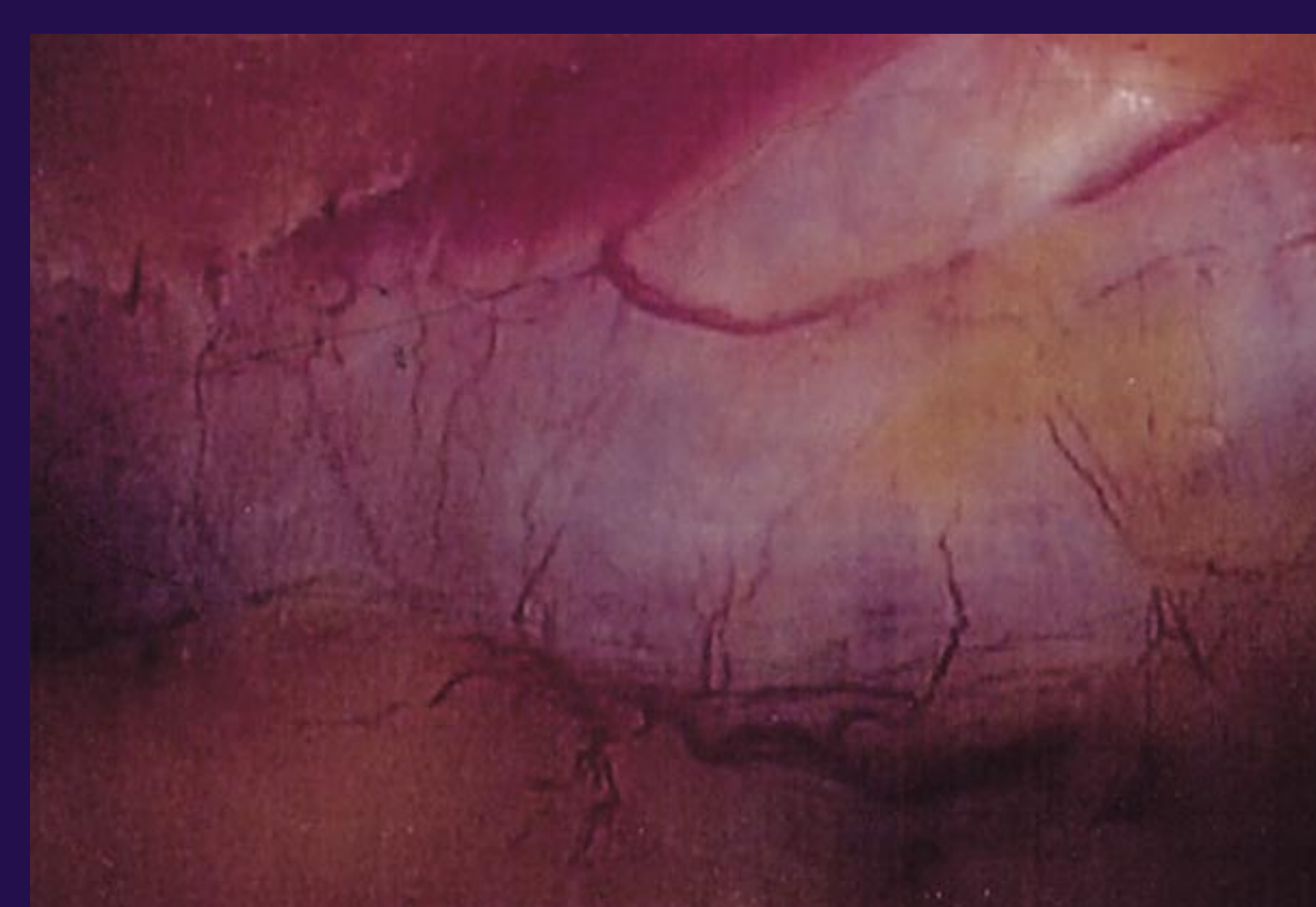
Hernia



Surgis IHM Implanted
March, 2001

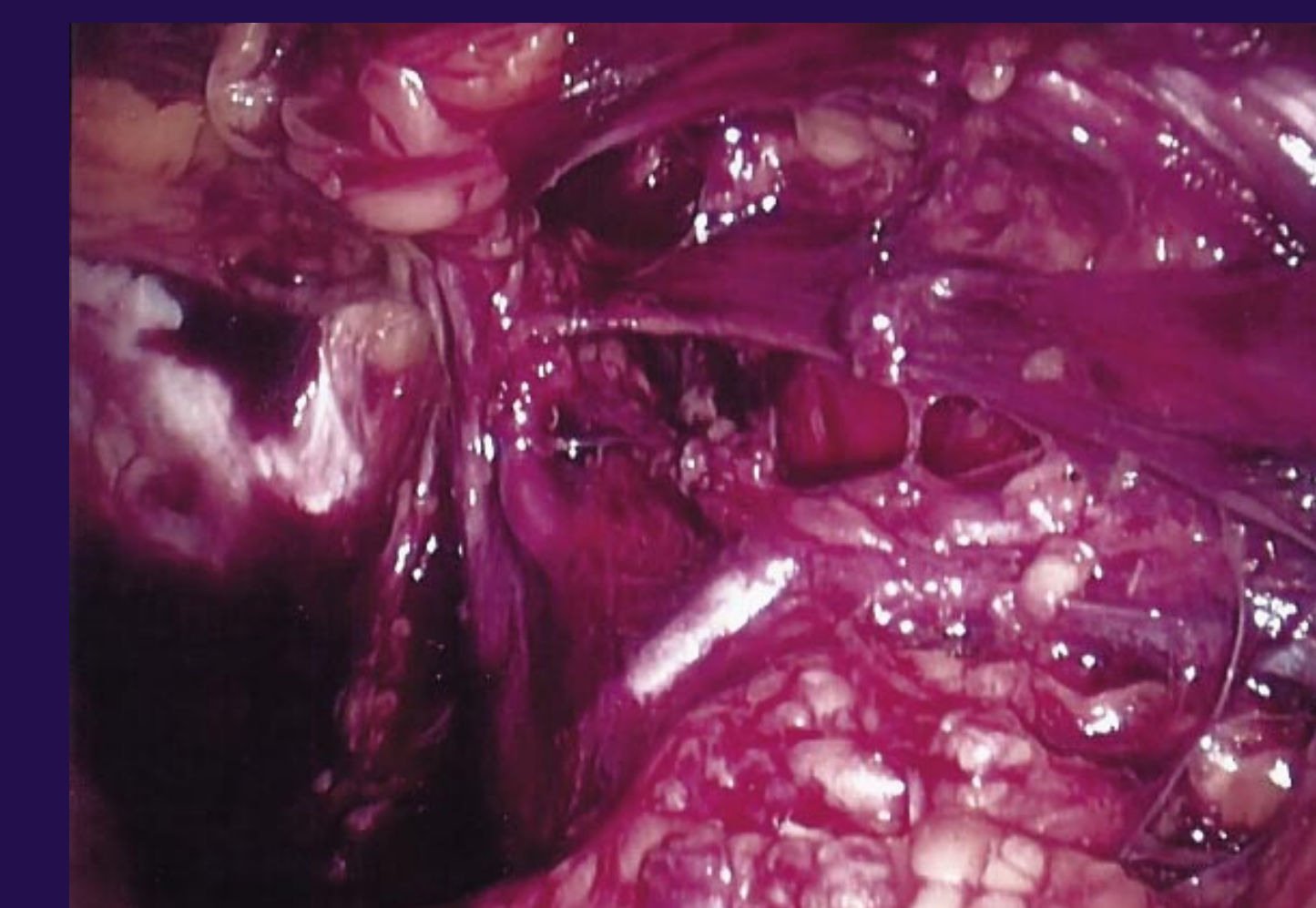


4 Year Results



Patient 2

Hernia



Surgis IHM Implanted
August, 2003



18 Month Results



Conclusions

- Porcine Small Intestine Submucosa mesh can be used for the laparoscopic repair of **INDIRECT** inguinal hernias.
- Ideal prosthetic mesh for hernia repair should:
- Be inexpensive to produce
 - Easy to use
 - Promote tissue in-growth
 - Result in a healed repair with equal strength to normal tissue
 - Provide resistance to infection

Observations

- Have used SIS to repair inguinal hernias during colectomy for diverticulitis
- Have used SIS to reinforce midline fascia for open colectomy/small bowel resection in patients with incisional hernias
- Ideal for umbilical hernia repair with small defect with primary closure
- I prefer 4 ply (vs 8 ply—**GOLD**)
- Porcine Small Intestine Submucosa mesh can be used for laparoscopic repair of Indirect inguinal hernias
- Close defect behind mesh
- Mesh in contact with tissue
- Consider contraction of mesh over time

References

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