ULTRASOUND OF HERNIAS

MICHAEL WILLIAMSON, M.D.
University of New Mexico

No Relevant Financial Relationships

TERMINOLOGY

- **NECK**: NARROW PART, USUALLY WHERE DEFECT IS LOCATED. GIVE NECK SIZE.
- **SAC OR BODY**: MAIN PART OF HERNIA. GIVE SIZE AND DESCRIBE CONTENTS.
- **STRANGLULATED**: ISCHEMIA. CAN’T TELL THIS
- **INCARCERATED**: CANNOT BE REDUCED
- **REDUCIBLE AND NON IRREDUCIBLE**
QUICK VERSION

- FEMORAL: MEDIAL TO FEMORAL VEIN, MOVES FROM SUPERIOR TO INFERIOR, FEMALES, STRANGULATES
- INDIRECT: FROM AIIS TO SYMPHYSIS, CONGENITAL, MALES, ANT TO CORD STRANGULATES
- DIRECT: FROM MEDIAL AND BEHIND CORD, MOVES POST TO ANT, OLD MALES, DOESN’T STRANGULATE

CAUSES, ASSOCIATIONS OF HERNIAS

- INDIRECT HAVE A CONGENITAL COMPONENT
- ALL ASSOCIATED WITH COLLAGEN ABNORMALITY
- ABNORMAL RATIO OF TYPE III IMMATURE COLLAGEN TO TYPE I MATURE COLLAGEN
- ASSOCIATION WITH AORTIC ANEURYSMS
- OTHER ASSOCIATIONS INCLUDE CIGARETTE SMOKING, EHLERS-DANLOS, MUCOPOLYSACCHARIDOSES, OBESITY, POOR CONDITIONING, ASCITES, PERITONEAL DIALYSIS, COPD, ETC

FEMORAL HERNIA

- THRU FEMORAL RING, ENTRANCE TO FEMORAL CANAL
- 20% OF HERNIAS IN FEMALES, 5% IN MALES
- USUALLY JUST ABOVE SAPHENOUS MERGER WITH FEMORAL V. AND MEDIAL TO VEIN
- RISK OF STRANGULATION
- EXTEND INTO MEDIAL THIGH
- CONTAIN FAT AND/OR BOWEL

SAGITTAL VIEW OF LAYERS

- SPIGELIAN: MOVES POST TO ANT AT THE LINEA SEMILUNARIS, OCCURS ANYWHERE ALONG THAT LINE, NO STRANGULATION
- UMBILICAL: FEMALES, MAY STRANGULATE, MAY NOT BE EXACTLY IN UMILICUS

- UMBILICAL: FEMALES, MAY STRANGULATE, MAY NOT BE EXACTLY IN UMILICUS
- FEMORAL ASSOC. W/ PREGNANCY
- FEMORAL ASSOC. W/ PREGNANCY
INDIRECT HERNIA

- ENTERS DEEP RING WHICH IS MARKED BY IEA
- EXTENDS FROM PERITONEAL CAVITY INTO DEEP RING, DOWN INGUINAL CANAL OR CANAL OF NUCK
- OFTEN CONGENITAL BECAUSE OF PATENT CANAL
- USUALLY ON RT MORE THAN LT
- FAT AND/OR BOWEL
- NECK IS AT DEEP RING
- ANTERIOR TO SPERMATIC CORD
DIRECT HERNIA

- OLD MAN’S HERNIA
- POOR COVERAGE OF CONJOINED TENDON
- CONJOINED TENDON: IOM, TA, TA
- APONEUROSIS
- PROBABLY MORE OFTEN TEAR TRANSVERSALIS FASCIA
- USUALLY WIDE BROAD NECK, REDUCIBLE
SPIGELIAN HERNIA
- DEFECT IN APONEUROSIS OF IOM AND TA
- CAN BE ANYWHERE ALONG LINEA SEMILUNARIS
- USUALLY LOWER ABDOMEN WHERE IEA PENETRATES AND RECTUS A. LESS BROAD
- USUALLY PROJECTS POSTERIOR TO ANTERIOR BUT MAY MOVE OBLIQUELY

UMBILICAL
- UMBILICAL RING; MAY INCREASE IN SIZE WITH AGE
- HERNIA MOVES POST TO ANT
- "ROUND LIG(OBLITERATED UMB V) DOESN’T REINFORCE THE UMB RING"
- OR, ? LATE MIDGUT RETURN TO ABDOMEN
- MOST ADULTS HAVE PARAUMBILICAL HERNIA AND ARE DUE TO WEAK LINEA ALBA

REPAIR UMBILICAL HERNIAS
- TENDENCY TO STRANGULATE
THE STEPS

- TD TRANS TO FEMORAL A AND V, FIND SAPHENOUS VEIN ENTRANCE INTO FEMORAL V, LOOK FOR FEMORAL HERNIA.
- MOVE TD PROXIMALLY ON FEM A AND V. LOOK FOR SUPERFICIAL AND DEEP ILIAC CIRCUMFLEX AA. THESE GO LATERALLY. NEXT VESSEL GOES MEDially AND IS IEA.
- ROTATE TD INTO INGUINAL CANAL PLANE. LOOK FOR INDIRECT HERNIA.

- MOVE TD MEDIATELY. LOOK FOR DIRECT HERNIA.
- MOVE TD SUPERIORLY ALONG IEA. KEY OFF RECTUS/Oblique JUNCTION. LOOK FOR SPIGELIAN HERNIA.
- DO IT AGAIN STANDING.

COMPLICATIONS OF REPAIR

- RECURENT HERNIA: HERNIA RECURS ALONG EDGE OF MESH. SCAN THE PERIPHERY OF MESH.
- INFECTION: HAS FLUID. FLUID IS NORMAL POST OP FOR A MONTH OF SO.
- SPERMATIC CORD IS THICK POST OP, DOESN’T MEAN INFECTION.
- TESTICULAR ISCHEMIA: MESH OBLITERATES TESTICULAR ARTERY. TESTICLE BECOMES SMALL WITH POOR FLOW. IN TRADITIONAL REPAIR, THIS DOESN’T HAPPEN.
STAND THEM UP!!

References
