



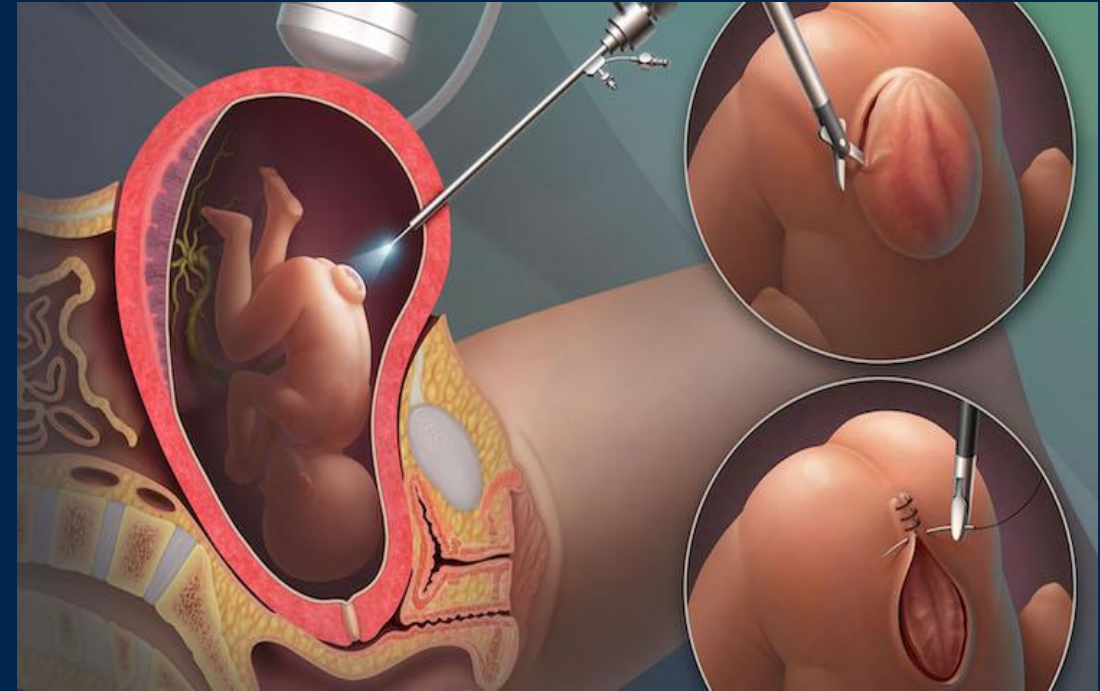
# Evaluating Bladder Function and Safety in Prenatal Fetoscopic Versus Prenatal Open Myelomeningocele Repair

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# BACKGROUND

- SB: MC permanently disabling birth defect (34/100k prevalence)
- Increasing use of prenatal intervention after MOMS trial
- Minimally invasive surgery becoming mainstream
  - Fetoscopic MMC repair used by a growing number of institutions



# BACKGROUND

- Fetoscopic benefits

- Demonstrated within MFM and NSGY literature\*



preterm labor rates

→ 2 week gestation age  
improvement with fetoscopic



vaginal delivery rates

- CIC +/- anticholinergics is norm in SB population (90%+)
  - Not ideal metric for success

\*Belfort MA, et al, Obstetrics and Gynecology, 2017

# AIM + HYPOTHESIS

- Establish utility of the UMPIRE bladder risk stratification as a predictor of urologic outcome
- **We hypothesized that prenatal fetoscopic repair is superior to prenatal open with respect to postnatal bladder risk**

# METHODS

- Retrospective
- All prenatal MMC repairs
  - Prenatal open
  - Fetoscopic repair
- RBUS and CMG  
    <9mo age  
    AND
- Follow up studies  
    within 18mo of  
    initial

Repair Type	Initial High Risk	Follow up High Risk	Total Improved	Initial HN	Follow up HN
Prenatal Open (N=15)	11 (73.3%)	6 (40%)	5 (33%)	2 (13%)	0 (0%)
Fetoscopic (N=13)	7 (54%)	1 (7.7%)	8 (62%)	0 (0%)	0 (0%)

# METHODS

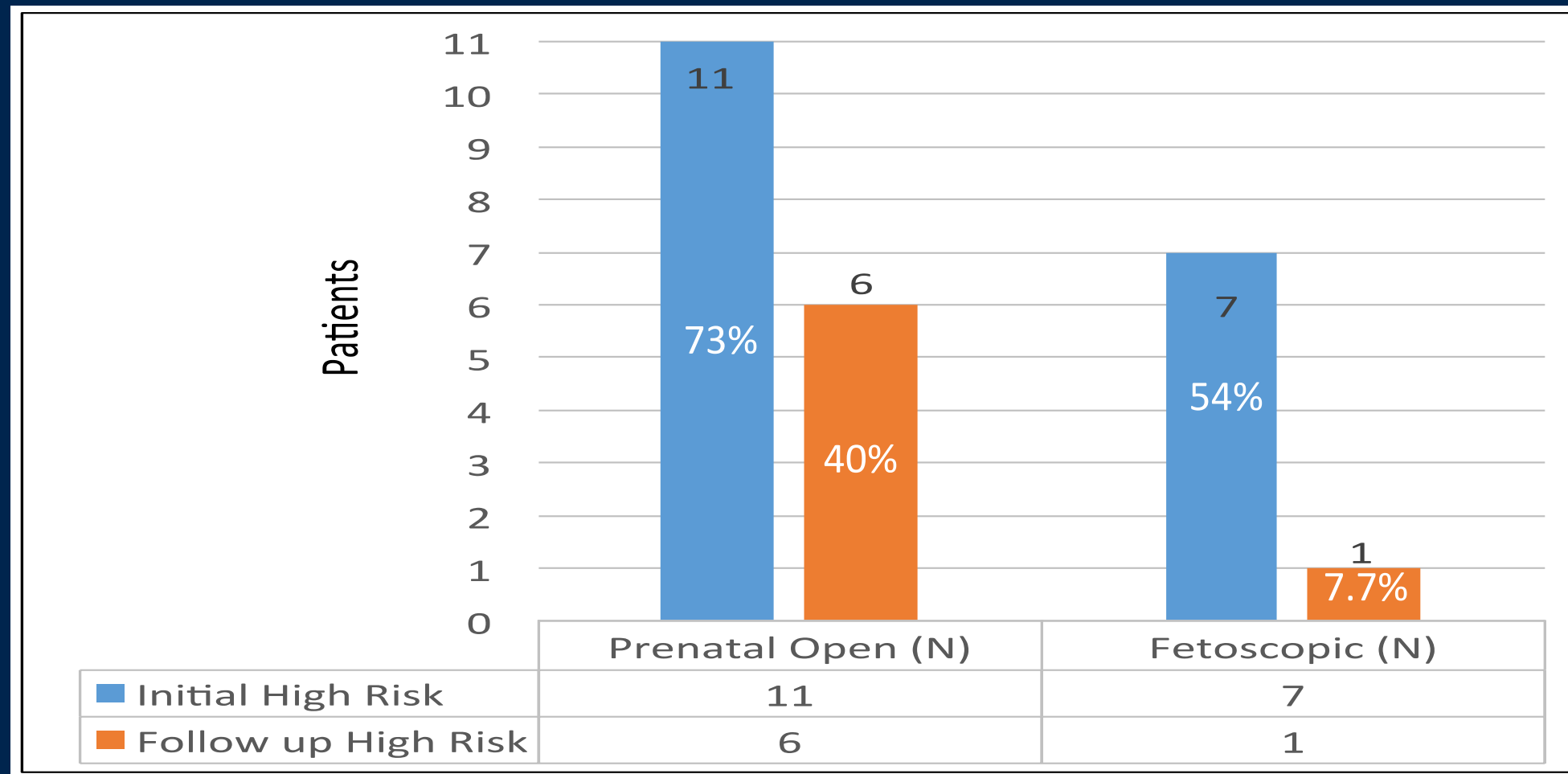
- US: evaluated for HN
  - None, Unilateral, or Bilateral
- CMG: evaluated for bladder risk categorization
  - Normal/Abnormal SAFE
  - INTERMEDIATE
  - HIGH

<u>Safe</u>	<u>Intermediate</u>	<u>High</u>
<ul style="list-style-type: none"><li>• Normal Capacity</li><li>• MDSP/DLPP &lt;25cmH20</li><li>• No NDO</li><li>• No DSD</li></ul>	<ul style="list-style-type: none"><li>• MDSP/DLPP 25-40cmH20</li><li>• Presence of NDO</li><li>• No DSD</li></ul>	<ul style="list-style-type: none"><li>• MDSP/DLPP &gt;40cmH20</li><li>• Presence of NDO + DSD</li></ul>

MDSP = Maximum Detrusor Storage Pressure; DLPP = Detrusor Leak Point Pressure; NDO = Neurogenic Detrusor Overactivity; DSD = Detrusor Sphincter Dyssynergia

# FINDINGS

FETOSCOPIC: Less High Risk bladders present on initial and follow up studies



# FINDINGS

- Hydronephrosis present in 13% of prenatal open
  - Resolved in all
- No hydronephrosis seen on initial or follow up RBUS in fetoscopic





# CONCLUSIONS

- Fetoscopic demonstrates fewer high risk bladders on:
  - Initial evaluation (54% vs. 73%)
  - Final follow-up (7.7% vs. 40%)
- Fewer prenatal open improve on follow up (33% vs 62%)
- Larger, multi-institutional, prospective studies are needed