

Suspensory Axis Is Key to Pelvic Reconstruction

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Contributing Writer

ST. LOUIS — Recognition of the importance of the suspensory axis of the vagina is necessary for a successful pelvic support surgery, according to Carl W. Zimmerman, M.D.

If disruptions of this axis around the pericervical ring are corrected surgically, the mechanical function of suspension can be reestablished, said Dr. Zimmerman, professor of obstetrics and gynecology at Vanderbilt University, Nashville, Tenn. He outlined the restoration of the vaginal suspensory axis, what he called the "most important concept in pelvic reconstructive surgery," at the 14th International Pelvic Reconstructive and Vaginal Surgery Conference.

The vaginal suspensory axis is a continuum of connective tissue that serves as the primary structure to hold the central pelvic organs above the levator plate and behind the urogenital hiatus. The named components of this axis are the perineum, rectovaginal septum, pericervical ring, uterosacral ligaments, and presacral periosteum. The elements involved with holding the bladder, uterus, rectum, and vagina above the pelvic diaphragm are located within the posterior vagina.

"When these structures are anatomically intact, prolapse does not occur. When they are disrupted, one or more of the central pelvic organs have a tendency to fall through the pelvic floor and to

create prolapse," Dr. Zimmerman said at the conference, which was sponsored by the Society of Pelvic Reconstructive Surgeons and Emory University.

"The mechanical function of suspension should be contrasted with support. Support of the pelvic floor is provided by the muscles of the pelvic diaphragm and their associated parietal fasciae," he said.

Analysis of the mechanics of childbirth can provide information to deduce the most likely location of damage during labor. "The narrowest diameter in the pelvis is between the ischial spines. This plane is intersected by all named components of the endopelvic fascia. The passage of a baby's head through the diameter subjects this area to high and sustained pressures during childbirth," he said.

In addition, the pericervical ring is substantially stressed by dilation of the cervix. The cardinal movements of internal rotation, flexion, and descent are required to allow the baby to negotiate this area of the pelvis. Maximum pelvic connective tissue strength is located within the most restricted portion of the pelvis.

"The usual result of labor is distal displacement of the pubocervical septum and rectovaginal septum. The uterosacral ligaments remain attached to the presacral



periosteum. The most vulnerable location along the axis is at the uterosacral ligament/pericervical ring/rectovaginal septum junction within the interspinous diameter," Dr. Zimmerman said. "Pelvic reconstructive surgeons are required to access the interspinous diameter and to reconnect these key structures in that area.

'Pulling the rectovaginal septum down to the perineal body' will enlarge the defect.

DR. ZIMMERMAN

Failure to reestablish the suspensory axis within the interspinous diameter violates the mechanical tenets of suspension. "In the typical case of prolapse, the rectovaginal septum is detached from its connections within the interspinous diameter and displaced downward. Enterocele, rectocele, and perineal descent result, because the entire posterior vaginal wall is allowed to descend. If the rectovaginal septum is exposed by dissection, elevated, and reattached to both uterosacral ligaments, the suspensory axis is reestablished, and posterior prolapse is repaired," he added.

Site-specific techniques can allow this

connection to be accomplished with minimal anatomic distortion, Dr. Zimmerman said. Both rectocele and enterocele protrude through the same anatomic defect. These hernias disappear when the rectovaginal septum is suspended apically with bilateral uterosacral colpopexy.

The apical edge of the pubocervical septum is also displaced distally, Dr. Zimmerman said. In addition, this septum is separated from the pelvic sidewall in the form of paravaginal defects. "When effectively repaired, the anterior connective tissues should be reconnected to the primary support axis in the posterior vaginal wall at the level of the ischial spines."

Some techniques in the surgical literature describe correction of a defect between the distal rectovaginal septum and the apical perineal body. Damage to the perineum is either a laceration or an iatrogenic episiotomy. The mechanics of labor do not explain a fascial defect at this location. "Pulling the rectovaginal septum down to the perineal body will simply enlarge the defect that causes rectocele and enterocele. That type of repair usually is combined with an anatomically distorting midline plication and is not recommended," he said.

Counsel the Elderly About Increased Risks of Urogynecologic Procedures

ATLANTA — Advanced age is an independent risk factor for in-hospital mortality and perioperative complications in women undergoing urogynecologic surgery, Vivian W. Sung, M.D., reported at the annual meeting of the American Urogynecologic Society.

In a retrospective cohort study of 264,340 women who underwent inpatient urogynecologic procedures from 1998 to 2002, the in-hospital mortality rate was 2.8% in those aged 80 and older, compared with 0.9% in those 70-79 years old, 0.5% in those aged 60-69, and 0.1% in those younger than 60, said Dr. Sung of Brown University, Providence, R.I.

The findings have important implications for counseling older women about urogynecologic surgery options, because elective surgeries to improve quality of life in these patients are increasingly common. "Elderly women should not be excluded from procedures that may improve their quality of life; however, it is appropriate to consider age alone when counseling women," Dr. Sung said.

Of the study participants, 19% were aged 60-69 years, 16% were aged 70-79 years, and 4% were at least 80 years old.

The perioperative complication rate was 20% in those ages 80 and older, 16% for those aged 70-79, 13% for those aged 60-69, and 14% for those under age 60.

Mean length of stay in the hospital also was increased in the oldest group of patients (3.2 days among those 80 and older, vs. 2.4 days for the other groups).

Even after adjusting for comorbidity status, increased age was significantly associated with increased risk of in-hospital death and complications. For example, the adjusted odds ratio for in-hospital death was 13.8 among those aged 80 and older without comorbidities, and a similar trend was seen in women with any comorbidities, Dr. Sung noted.

The risk of complications was significantly lower among those aged 80 and older undergoing obliterative procedures, such as colpocleisis or colpectomy, compared with reconstructive procedures, such as vaginal vault suspension with or without hysterectomy (17% vs. 25% complication rate). The risk of in-hospital death with obliterative procedures also was lower in this population, though not significantly, she said.

Women included in the study were part of the National Inpatient Sample. Urogynecologic discharge diagnoses and procedural ICD-9 codes were used to identify those undergoing urogynecologic procedures. The patients had a mean of 2.8 procedures per admission, and this was similar across the age groups.

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