



## Should cystoscopy be routine at the time of hysterectomy?

**Yes** In this prospective study of 839 women undergoing hysterectomy for benign disease, the incidence of lower urinary tract injury was 4.3%, with 97.4% of injuries detected at the time of intraoperative diagnostic cystoscopy.

*Ibeanu OA, Chesson RR, Echols KT, Nieves M, Busangu F, Nolan TE. Urinary tract injury during hysterectomy based on universal cystoscopy. Obstet Gynecol. 2009;113:6-10.*

### ► EXPERT COMMENTARY

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The overall rate of ureteral injury at the time of hysterectomy and other gynecologic procedures for benign disease has been estimated at 8.8 injuries for every 1,000 procedures, with the highest rate (17.3/1,000) occurring during laparoscopic hysterectomy with bilateral salpingo-oophorectomy (BSO). The rate of bladder injury is estimated at 16.3 for every 1,000 gynecologic procedures and 29.2 for every 1,000 laparoscopic hysterectomies with BSO.<sup>1</sup>

Cystoscopy is a low-risk procedure that may be beneficial in surgeries associated with a high rate (1% to 2%) of lower urinary tract injury.<sup>2</sup> Early detection of bladder or ureteral injury is preferable to avoid postoperative complications such as fistula formation, loss of renal function, and other complications requiring additional surgery and prolonged hospitalization. Early detection also reduces medicolegal risk.

Ibeanu and associates point out that many gynecologic surgeons do not perform cystoscopy routinely, because of either a lack of training or difficulty obtaining privileges to perform this urologic procedure. They also note that the benefits of cystoscopy clearly outweigh the risks.

### Only 25.6% of injuries were detected by visual inspection

Roughly one in four injuries to the bladder and ureter were detected without the aid of cystoscopy; the rest were identified using cystoscopy.

Twenty-four cases of bladder injury (2.9%) and 15 cases of ureteral injury (1.8%) were identified at the time of rigid diagnostic cystoscopy after hysterectomy. The majority (544) of the hysterectomies were abdominal, followed by vaginal hysterectomy (227) and laparoscopically assisted vaginal hysterectomy (61) (TABLE, page 14).

Most ureteral injuries (80%) occurred at the level of the uterine artery. The ureter is difficult to visualize or palpate once it goes under the uterine artery and courses along the anterior vagina before entry into the urinary bladder.

Ureteral injury also was common at the level of the infundibulopelvic ligament. One patient developed vesicovaginal fistula postoperatively that was missed on initial cystoscopy.

### Cystoscopy is imperfect, but effective, and its cost is justifiable

Cystoscopy should be performed routinely after any gynecologic procedure associated with a high risk of injury, such as difficult bladder or ureteral dissection. Findings that

### FAST TRACK

In this prospective study, intraoperative diagnostic cystoscopy identified 97.4% of urinary tract injuries

### CYSTOSCOPY IN ACTION

To view diagnostic cystoscopy being performed at the time of hysterectomy for benign disease, watch the video linked to this article in the Video Library at [www.obgmanagement.com](http://www.obgmanagement.com)

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## Examining the EVIDENCE

**TABLE** Injury rate, by hysterectomy procedure

Type of procedure	Bladder injury	Ureteral injury
Total abdominal hysterectomy	2.3%	1.7%
Total vaginal hysterectomy (alone)	1.8%	0.9%
Total vaginal hysterectomy (with prolapse procedures)	2.6%	1.7%
Laparoscopically assisted vaginal hysterectomy	3.3%	0

justify cystoscopy include de novo hematuria and air in the Foley bag during laparoscopy.

Although cystoscopy may not identify all injuries, its benefits likely outweigh any additional cost associated with the procedure when a high rate of injury is likely (greater than, say, 1.5%).<sup>3</sup>

This study was conducted over 8 years at three academic practices, so it may not be possible to generalize its findings broadly across practitioners.

### References

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## WHAT THIS EVIDENCE MEANS FOR PRACTICE

Perform cystoscopy to verify integrity of the lower urinary tract at the time of hysterectomy for benign disease. Appropriate training to detect and repair injury is required to optimize surgical outcomes.

>> CHERYL IGLESIA, MD



# What percentage of cerebral palsy cases might be associated with intrapartum asphyxia?

**14.5%** This meta-analysis found that, in developed countries, the incidence of hypoxic-ischemic encephalopathy at term is 2.5 for every 1,000 live births and that the percentage of cases of cerebral palsy associated with intrapartum asphyxia is 14.5%.

*Graham EM, Ruis KA, Hartman AL, Northington FJ, Fox HE. A systematic review of the role of intrapartum hypoxia-ischemia in the causation of neonatal encephalopathy. Am J Obstet Gynecol. 2008;199:587-595.*

## ► EXPERT COMMENTARY

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This meta-analysis and the accompanying editorial<sup>1</sup> offer some insights into the complex question of the cause, or causes, of cerebral palsy (CP). The analysis also explores variables that may help identify those cases of CP that arise from intrapartum events. The review includes studies from both developed and developing countries and covers a broad swath of time, from the Johns Hopkins study of births between 1945 and 1949, through the Collaborative Perinatal Project of the 1950s and '60s, to the present. All of the studies are suggestive, but none are conclusive. And given their heterogeneity, as well as the time span covered, it is a challenge to interpret and apply their findings.

In his editorial, Freeman acknowledges the complexity of the issue and allows that some cases of CP are clearly caused by substandard intrapartum care, but he leaves many essential questions unanswered.<sup>1</sup> Similarly, the meta-analysis itself offers multiple explanations of the possible causes of CP but relatively few conclusions that can be applied

to any specific case of CP, when the cause in that case is unclear.

## Authors focus on cord pH below 7.0

To be sure, an umbilical artery pH of less than 7.0 at birth is concerning, but even at this level of acidosis, results are conflicting. Combining data from multiple studies, the authors concluded that the incidence of significant neonatal neurologic morbidity and mortality was significant among nonanoma-

## WHAT THIS EVIDENCE MEANS FOR PRACTICE

- Recognize that prematurity and infection are the leading risk factors for cerebral palsy (CP) in nonanomalous infants.
- Be cognizant of the lack of predictive value—both positive and negative—of current methodologies, such as Apgar score and pH level, in regard to CP.
- Remember that neither the introduction of electronic fetal monitoring nor the increase in the cesarean delivery rate from 5.5% in 1970 to 31.1% in 2006 has appreciably altered the rate of CP in the United States.
- Don't discount the importance of the first 20 minutes of postnatal life. They are perhaps at least as important as the final 20 minutes of fetal life. When delivering a patient who has a risk factor for CP, do not hesitate to request the presence of a skilled neonatologist for assistance with newborn resuscitation.

» JOHN T. REPKE, MD

## FAST TRACK

In developed countries, approximately 2.5 of every 1,000 live births are affected by hypoxic-ischemic encephalopathy, and 14.5% of cerebral palsy cases are associated with intrapartum asphyxia

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## Examining the **EVIDENCE**

lous infants who had such a pH level (23.1%). However, the remaining 76.9% of infants were neurologically normal at the time of hospital discharge.

Nor did Apgar scores predict asphyxial complications when cord pH was less than 7.0. However, the combination of an Apgar score of 3 or less and cord pH below 7.0 was a sensitive predictor of serious neonatal morbidity.

### **Questions abound—but not answers**

It was thought that electronic fetal monitoring would eliminate intrapartum stillbirth and reduce the incidence of CP—but neither goal has been achieved. Moreover, the presence of meconium, long associated with nonreassuring fetal status, was found in one study to have no association with CP.<sup>2</sup>

As for the role of infection, inflammation, and intrapartum fever, Eastman and DeLeon suggested as early as 1955 that intrapartum fever was seven times more likely in mothers of children who were later diagnosed with CP than in mothers of normal children—and intrapartum fever, infection, and neonatal fever remain prime suspects in the CP mystery.<sup>3</sup>

How does the average clinical obstetrician interpret and use these results? How does our legal system use these results?

It depends. The overwhelming majority of nonanomalous term infants do well. For the few who develop CP, there often is an accepted reason for the diagnosis.

Graham and colleagues conclude that only 14.5% of CP cases are associated with intrapartum asphyxia. The dilemma? For that 14.5%—or even the remaining 85.5%—our ability to determine the true cause of CP in any given case is unreliable. Who or what test can conclusively eliminate intrapartum asphyxia as a medically probable cause?

The answers are disheartening. ☹

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