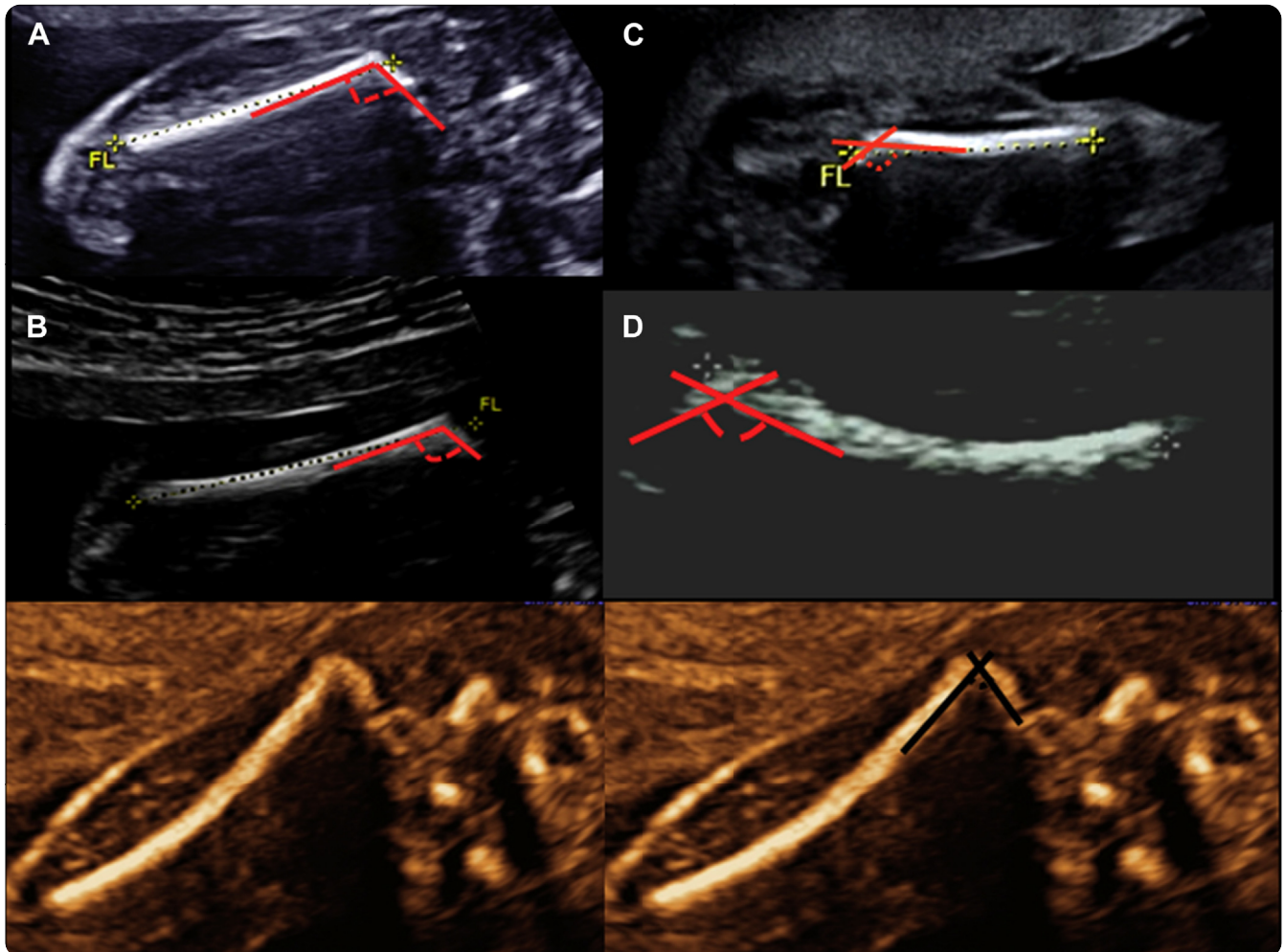


## FIGURE

## The femoral angle at 20–24 weeks: in fetuses with achondroplasia



Two-dimensional ultrasound appearance of the femoral proximal diaphysis–metaphysis angle with the femoral angle measured with ultrasound probe positioned at 45 degrees to diaphyseal axis in a normal fetus at 20.4 weeks' gestation and in 4 fetuses with achondroplasia at **A**, 22.0, **B**, 21.9, **C**, 22.0, and **D**, 20.1 weeks' gestation.

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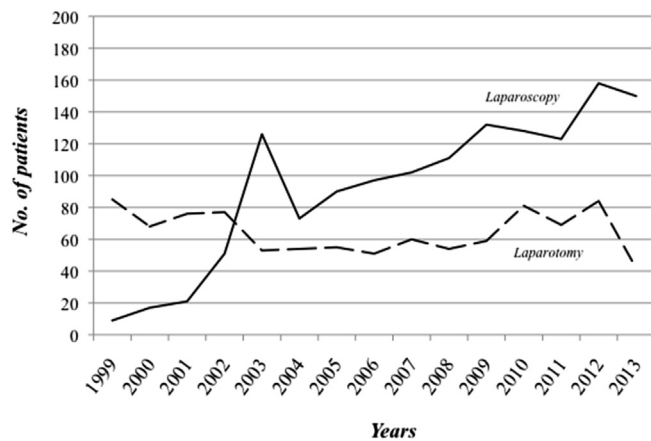
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## Prevalence of unexpected leiomyosarcoma at myomectomy: a descriptive study

**OBJECTIVE:** Electric morcellation of uterine fibroids at laparoscopy may cause intraperitoneal dissemination of occult leiomyosarcomas, with worsening of the already

poor prognosis.<sup>1</sup> According to the Food and Drug Administration (FDA) this may occur in 1/498 (0.2%) procedures.<sup>2</sup> Therefore, myoma morcellation is being

**FIGURE**  
**Use of laparoscopy or laparotomy for myomectomy:**  
**institutional temporal trend**



Number of patients undergoing myomectomy at laparoscopy (continuous line) or laparotomy (dotted line) during study period. Progressive increase in proportion of procedures performed endoscopically is observed particularly in third quinquennium.

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stringently restricted.<sup>2</sup> However, age is a risk factor and the peak incidence of leiomyosarcomas is >50 years.<sup>3</sup> Thus, populations undergoing myomectomy or hysterectomy should be considered separately.<sup>3</sup> Our aim was to define the prevalence of unexpected leiomyosarcomas in a large series of myomectomies.

**STUDY DESIGN:** The databases of our center were searched to determine the number of myomectomies performed at laparoscopy or laparotomy in a 15-year period (January 1999 through December 2013). Pathology reports were reviewed and cross-checked with those of our gynecologic oncology service. The objective was definition of the prevalence of leiomyosarcomas and tumors with atypical features not detected preoperatively.

**RESULTS:** Myomectomies were performed in 2356 women with a mean  $\pm$  SD age of  $39 \pm 6$  years, at laparoscopy in 1388 cases and at laparotomy in 968. From 2008 through 2013, only one third of patients (388/1205) underwent myomectomy at laparotomy (Figure). All fibroids removed endoscopically were morcellated. We observed 1 case of leiomyosarcoma in a 39-year-old woman with an 8-cm tumor, and 1 case of smooth muscle tumor of uncertain malignant potential (STUMP) in a 47-year-old woman with a 9-cm lesion. Both women underwent a laparoscopic procedure. The proportion of leiomyosarcoma was 0.04% (95% confidence interval, <0.01–0.27%). Considering also the STUMP case, the proportion of unexpected tumors was 0.08% (95% confidence interval, <0.01–0.33%). The patient with the sarcoma died 4 months after the

myomectomy, whereas the patient with STUMP is free of disease at 2-year follow-up.

**CONCLUSION:** In our large myomectomy series, the risk of unexpected leiomyosarcoma was <1/2000. Including the STUMP case, the proportion of unexpected tumors was <1/1000, substantially lower than that indicated by the FDA.<sup>2</sup> However, the FDA estimate was based mainly on hysterectomy series,<sup>2</sup> in which the risk of occult leiomyosarcoma should be higher because women are generally older than those undergoing myomectomy.<sup>3</sup>

The prevalence of leiomyosarcoma in our series is similar to that observed in an Italian multicenter study (0.09%; 2/2050),<sup>4</sup> and lower than that found in a US nationwide database (0.18%; 76/41777).<sup>3</sup> Even at laparotomy, myomectomy is not an “intact” procedure, as the myometrium is incised and the leiomyoma is extracted through aggressive retraction, including putting sharp clamps into it. Mechanistically, this should also carry a risk of tissue dissemination. Myoma morcellation in a bag could theoretically limit intraperitoneal dissemination of malignant cells, but the efficacy of such containment devices has yet to be proven.<sup>1</sup> The same devices could be used at transvaginal extraction for myoma retrieval after laparoscopic myomectomy.<sup>5</sup>

In young women the prevalence of unexpected leiomyosarcoma at myomectomy is exceedingly low. If power morcellation were definitively banned, the major downside would be imposing substantial additional morbidity upon women undergoing an open procedure as opposed to a minimally invasive one. ■

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