THE PROS AND CONS OF LAPAROSCOPIC MYOMECTOMY

J. Donnez
Université Catholique de Louvain, Cliniques Universitaires Saint-Luc, Dept. Of Gynecology, Brussels, Belgium

Two questions that have to be addressed when dealing with uterine myomas are which myomas need to be removed and which procedure should be performed to remove them. To answer these questions, the classic risk-benefit ratio analysis must be applied. The best treatment is that which improves symptoms with the fewest side effects and complications, and the lowest risk of recurrence. Medical treatment, abdominal myomectomy, laparoscopic myomectomy or myolysis, hysteroscopic myomectomy, myoma embolization and hysterectomy all have a place in the treatment of myomas. This presentation aims to analyze the pros and cons of laparoscopic myomectomy. The feasibility, safety and efficiency of laparoscopic and abdominal myomectomy are compared. A number of case series have demonstrated the feasibility of laparoscopic myomectomy (Adamian 1996, Seineira 1997, Dubuisson 2000, Doridot 2001, DiGregorio 2002, Landi 2003, Sinha 2003, Malzoni 2006), with low (<2%) conversion rates, even in series with myomas up to 20 cm in size (Malzoni 2006). However, conversion rates of up to 29% (Marret 2006) have also been reported.

Risk factors for conversion, hence factors influencing the feasibility of laparoscopic myomectomy, are myoma size, intramural location of myomas and the surgeon's experience.

Concerning the safety of laparoscopic myomectomy, four prospective randomized controlled trials have compared abdominal and laparoscopic myomectomy (Mais 1996, Serrachioli 2000, Rossetti 2001, Alessandri 2006). In these RCTs, laparoscopic myomectomy was associated with decreased blood loss and reduced postoperative fever. However, Stringer's case-control series revealed increased blood loss by laparoscopy and complications such as bowel perforation due to morcellation (Altgassen 2006, Alessandri 2006). Multiple peritoneal parasitic myomas have also been described after morcellation (Paul 2006).

The risk of hemorrhage appears to be the major stumbling block of laparoscopic myomectomy and may be influenced by the number of myomas, technical skill and myoma size (Takeuchi 2002, Sinha 2003, Wang 2006). Vasoconstrictive agents could play a protective role, but complications due to these agents have been reported. GnRH agonists do protect against the risk of hemorrhage (Lethaby 2000) and their use may lead to a delay in the diagnosis of leiomyosarcoma, increased difficulty in finding the cleavage plane, increased risk of conversion to laparotomy and increased recurrence rates (Zullo 1998, Campo 1999, Palombo 2002, Vercellini 1999, Dubuisson 2001).

Five prospective RCTs (Mais 1996, Serrachioli 2000, Rossetti 2001, Alessandri 2006, Holzer 2006) and several case-control studies (Stringer 1997, Silva 2000) have demonstrated numerous advantages of laparoscopic myomectomy over abdominal myomectomy in terms of short-term efficiency (shorter hospitalization, faster recovery time, less expense, less pain). As far as long-term efficiency is concerned, the 2 different surgical approaches should be compared with respect to fertility outcome, pregnancy outcome and recurrence rates. The only available prospective RCT comparing pregnancy rates after laparoscopic and abdominal myomectomy (Serrachioli 2000) shows no differences between the two techniques.

Pregnancy rates after laparoscopic myomectomy are between 50 and 60% (Kucera 2006, Malzoni 2006, Paul 2006). These favorable rates might be related to the decreased risk of adhesions after laparoscopic myomectomy compared to abdominal myomectomy. However, no randomized trials have been performed comparing adhesions after laparoscopic and abdominal myomectomy, and prospective RCTs evaluating the use of adhesion barriers (Mais 1995, Pellicano 2003, Mettler 2004), while able to show a decrease in adhesion formation with the use of such barriers, were not able to prove efficacy in terms of pregnancy rates. Regarding pregnancy outcome after laparoscopic and abdominal myomectomy, no significant differences have been observed in miscarriage rates, preterm delivery rates or cesarean section rates (Serrachioli 2000). Cesarean section rates vary between 40 and 90%. There appears to be no consensus on the indications for cesarean section after laparoscopic myomectomy.

Various case reports have raised concerns about the risk of uterine rupture during pregnancy after laparoscopic myomectomy (Harris 1992, Dubuisson 1995, Mecke 1995, Friedmann 1996, Pelosi 1997, Hockstein 2000, Malberti 2004, Asakura 2004, Lieng 2004, Wada 2006, Grande 2006, Banas 2006). This complication may be related to insufficient closure or healing of the uterine incision, overaggressive use of electrosurgery resulting in poor vascularization and necrosis, or inappropriate suturing. But uterine rupture remains rare, and is also observed

after abdominal myomectomy. There are no prospective RCTs comparing uterine rupture after laparoscopic and abdominal myomectomy.
As far as recurrence rates are concerned, they appear to be similar after both procedures.
Overall, laparoscopy can be considered an appropriate, safe and effective tool to perform myomectomy under certain conditions. Relevant technical skills, correct material and assistance and accurate preoperative diagnosis of the number, size and location of myomas are nevertheless required.