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Laparoscopic myomectomy today

Why, when and for whom?

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Laparoscopic myomectomy is not only feasible, but is also associated with the recognized advantages of minimal access surgery, including short hospitalization and rapid recovery (Nezhat *et al.*, 1991; Hasson *et al.*, 1992; Dubuisson *et al.*, 1993). However, criteria for selecting women to undergo this procedure are undetermined. Thompson (1992) has remarked that '...after the right patient has been selected for operation, the right operation must be selected for the patient'.

Myomectomy is most commonly performed for women who are interested in preserving or enhancing their reproductive potential (Verkauf, 1992). This explains the concern regarding uterine wall integrity and adhesion formation. We previously reported finding uterine indentation at all sites of laparoscopic removal of intramural or deep subserosal myomas at second look laparoscopy (Nezhat *et al.*, 1991). The depth of indentation was directly proportional to the size of the myoma. During the follow-up course of these patients, we noted six uterine fistulas posteriorly in patients with deep intramural myomas (Nezhat, 1992). It was suggested that this may reflect a potential compromise in the integrity of the uterine wall. In support of this concern two cases of uterine dehiscence during pregnancy were reported following laparoscopic myomectomy (Harris, 1992; Dubuisson *et al.*, 1995). Although the overall risk of this complication remains to be determined, it is consistent with possible limitations of the laparoscopic approach.

Laparoscopic closure of the uterine incision may be inferior to that at laparotomy due to the difficulty in reapproximating the incision by laparoscopic suturing. The resulting accumulation of an intramural haematoma could be detrimental to healing. Extensive use of thermal energy, either laser or electrodesiccation, may lead to poor vascularization and tissue necrosis with a further negative effect on scar strength. We therefore advocate a combined approach. Laparoscopy is first performed. If the myoma is non-pedunculated, >5 cm in size, deeply intramural, or if numerous myomas requiring extensive morcellation are present, we isolate the largest myoma and retract it to the abdominal wall, and then proceed with a minilaparotomy. This laparoscopic-assisted technique (Nezhat *et al.*, 1994, 1995) allows conventional multi-layer suturing. It is also less technically demanding and less time-consuming. The time savings can be contributed primarily to eliminating the need to morcellate the myoma and remove it from the abdomen. This procedure can thus be performed by less experienced surgeons and may be more cost effective. The duration of hospital stay and time to return to normal activity are similar after laparoscopic and laparoscopic-assisted myomectomy (Nezhat *et al.*, 1994). The operation should generally be deferred until the administration of gonadotrophin-releasing hormone (GnRH) agonists reduce fibroid size (Audebert *et al.*, 1994).

Post-myomectomy adhesion formation presents a special problem for patients wishing to enhance their fertility. Data obtained after second-look procedures revealed more numerous and dense adhesions when suturing was performed (Nezhat *et al.*, 1994). We believe the meticulous closure of the uterus, possible with minilaparotomy, is likely to result in decreased adhesion formation. Barrier materials, including absorbable, oxidized regenerated cellulose [Interceed (TC7); Ethicon Inc., Sommerville, NJ, USA] and non-absorbable expanded polytetrafluoroethylene (Gore-Tex Surgical Membranae; W.L.Gore and Associates Inc., Flagstaff, AZ, USA) effectively prevent adhesion formation (Mais *et al.*, 1995) (Myomectomy Adhesion Multicenter Study Group, 1994) at incision sites, and may be used at the completion of the laparoscopic procedure.

Laparoscopic myomectomy remains one of the most challenging operative procedures. It is indicated to remove pedunculated, small subserosal, intramural and intraligamentous myomas. Despite its proven feasibility, safe and time-efficient removal of large myomas from the abdomen demands exceptional surgical expertise. We believe that laparoscopic assisted myomectomy presents a safe and relatively easy procedure, which offers the patient a rapid convalescence similar to that of laparoscopic myomectomy. Patients undergoing laparoscopic surgery should be carefully consulted regarding the risk involved with future pregnancies according to the size and location of the myomas removed.

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A good technique when correctly indicated

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Uterine myomas are the type of pelvic tumour found most frequently (Novak *et al.*, 1970), and this raises the problem of how to manage them during everyday practice. When uterine myomas are diagnosed this does not necessarily mean surgery is required. The development of endoscopic procedures (hysteroscopy and operative laparoscopy) over the past few years should make no difference to the operating indications for uterine fibroids. Only complicated or large myomas (>6 cm) need surgery, together with those giving rise to symptoms which do not respond to properly conducted medical treatment. Technical advances mean that surgical treatment for certain indications of uterine myomas can be carried out today by operative laparoscopy. This treatment may be radical (Chapron *et al.*, 1994) or conservative (Daniell and Guerly, 1991; Dubuisson *et al.*, 1991; Nezhat *et al.*, 1991; Hasson *et al.*, 1992). However, laparoscopic myomectomy is a very recent technique as yet. We are of the same opinion as Nezhat *et al.* (1996) who underline that even if laparoscopic myomectomy is feasible and enables the patient to take advantage of all the benefits of minimal access surgery, it is nevertheless a difficult operation requiring perfect mastery of endoscopic suturing techniques, and needs further assessment.

In their article, Nezhat *et al.* (1996) express the belief that the two most crucial elements in laparoscopic myomectomy are the quality of the uterine suture and the risk of adhesions.

The problem of the quality of the uterine suture is above all important for women desiring pregnancy. Indeed there have been two reported cases of uterine rupture during the third trimester of pregnancy after laparoscopic myomectomy (Harris, 1992; Dubuisson *et al.*, 1995b), but it should be stressed that this risk, even if low, also exists when laparotomy is used (Rubin, 1942; Georgakopoulos and Bersis, 1981; Golan *et al.*, 1990). Nezhat (1992), observing six uterine fistulas after laparoscopic myomectomy, suggests that this may reflect a potential compromise in the integrity of the uterine wall. Our results seem to be more encouraging because we observed just one case of uterine rupture after laparoscopic myomectomy in 28 patients who obtained a uterine pregnancy which progressed to the third trimester. In 67.8% of these cases (19 patients), there was a normal vaginal delivery (Dubuisson *et al.*, 1996b). These results, like the encouraging fertility results after laparoscopic myomectomy (Dubuisson *et al.*, 1996a), are only preliminary and further assessment is needed in larger series with a longer follow-up period.

The second problem with laparoscopic myomectomy is the risk of adhesions. Once again the risk is not specific to laparoscopic surgery, for adhesions have been observed in 80% (Tulandi *et al.*, 1993) or even 100% of cases (Starks, 1988) after myomectomy via laparotomy. In our experience, 29 patients were followed-up after laparoscopic surgery for myomectomy. Unlike the findings of Nezhat *et al.* (1994), who report a very high level of adhesions after laparoscopic myomectomy, the rate of adhesions we observed on the hysterotomy scars was only 13.8% (four patients). However, even though our results seem to be in favour of laparoscopic surgery, they must be interpreted with caution. This follow-up was not systematic, in fact, and for certain patients the check was made on the occasion of a Caesarean section. These particular patients could perhaps form a particularly favourable group with a lower rate of adhesions because they became pregnant. Furthermore, comparison of the risk of adhesions according to whether the myomectomy was carried out via laparotomy or laparoscopy is very difficult, because the two techniques are not indicated for the same patients, as we shall see.

In order to render the uterine suture procedure easier, Nezhat *et al.* (1994) propose carrying out a laparoscopically-assisted myomectomy (LAM) using a minilaparotomy which can be less technically demanding and less time-consuming. The authors believe that this technique presents several advantages. It may be preferable in case of large myomas, may make it easier to achieve conventional multi-layer suturing and may make it easier to extract the myomas.

Between June 1990 and June 1995, 213 patients underwent laparoscopic myomectomy in our department using a technique which has been described elsewhere (Dubuisson *et al.*, 1993). In the course of these operations 437 myomas were removed. The average number of fibroids removed per patient was 2.05 ± 1.47. The mean size of the largest fibroid removed was 5.3 ± 2.25 cm. In 70.4% of cases (150 patients), the largest fibroid measured was between 4–9 cm and we carried out laparoscopic