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Correlation between salpingoscopic and laparoscopic staging in the assessment of the distal fallopian tube*

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Objective: To correlate the severity and extent of intraluminal tubal abnormalities assessed by transfimbrial salpingoscopy with traditional criteria for evaluating distal tubal disease at laparoscopy.

Design: Prospective 2-year clinical trial with long-term follow-up.

Setting: University-affiliated tertiary care reproductive medicine and surgery practice.

Patients: Fifty-five infertile women with suspected distal tubal disease or unexplained infertility.

Interventions: Transfimbrial salpingoscopy was performed at the time of laparoscopy and terminal neosalpingostomy when appropriate. Salpingoscopic and laparoscopic findings of 91 fallopian tubes were scored independently.

Results: No correlation between laparoscopic and salpingoscopic findings was noted in group I tubes (n = 51) categorized as having minimal disease or no pathology by traditional staging. In contrast, a strong correlation was noted between findings obtained from these two techniques in group II tubes (n = 40) diagnosed as having moderate-to-severe tubal disease at laparoscopy. Intrauterine pregnancy was achieved in 38.9% (7/18) of patients with mean salpingoscopy scores $\leq$ 12 versus 3.8% (1/26) of patients with mean scores > 12. Life-table analyses of cumulative estimated pregnancy rates were significantly different between the groups.

Conclusions: Fallopian tubes with minimal pathology appreciated at laparoscopy may have more significant intraluminal disease appreciated at salpingoscopy. In contrast, laparoscopic and salpingoscopic findings do correlate well in cases of more severe distal disease. Elevated mean salpingoscopy scores are associated with an extremely poor prognosis for conception. Fertil Steril 1996;65:267–71

Key Words: Fallopian tube, salpingoscopy, laparoscopy, hydrosalpinx

Assessment of the fallopian tube represents an integral portion of the evaluation of the infertile couple. Traditionally, indirect findings obtained at hysterosalpingography, laparoscopy, or laparotomy have been employed to accomplish this task. In cases of suspected distal tubal disease, investigators have employed the extent of tubal wall thickness, ampullary dilation, presence of mucosal folds, and peritubal adhesions as the primary criteria for predicting successful function (1–3). Others have suggested that the appearance of the fimbria and ampullary mucosa may play a more significant role (4).

Transfimbrial salpingoscopy represents an alternative diagnostic tool to accomplish this task (5, 6). This procedure, performed at the time of laparoscopy, is a microendoscopic approach for directly visualizing the endothelial lining and lumen of the distal fallopian tube from the ampullary-isthmic junction to the fimbria. We hypothesized that the results of staging systems based on endosalpingeal abnormalities appreciated at salpingoscopy may not always correlate with those derived from findings made at laparoscopy alone. This report presents the results of a large-scale prospective trial with long-term follow-up addressing this issue in women presenting with unexplained infertility or suspected distal disease.

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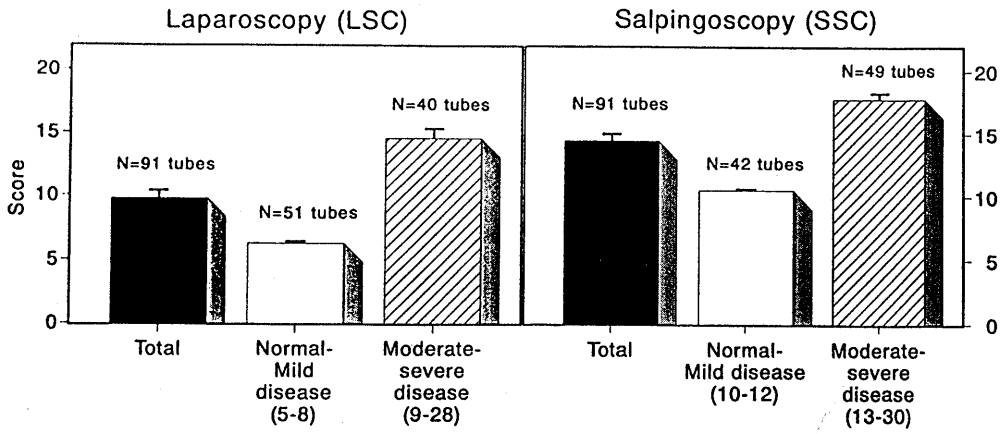

Figure 1 Mean ± SEM endoscopy scores for patients undergoing concomitant laparoscopy (*left*) and transfimbrial salpingoscopy (*right*) in patients with distal tubal disease or unexplained infertility.

Eighteen of the 51 tubes (35.2%) included in this group had salpingoscopy scores > 12, suggesting moderate-to-severe disease, despite the absence of such findings at laparoscopy alone.

Follow-up data were obtained successfully from 42 patients during a mean ± SEM period of 13.53 ± 1.45 months from surgery. Intrauterine pregnancies achieved without resorting to assisted reproductive technologies were reported in 7 of 18 (38.9%) of patients with salpingoscopy scores ≤ 12, but in only 1 of 24 (4.1%) of those with scores > 12. Comparison of the results of life-table analyses revealed a significant difference in estimated cumulative pregnancy rates (PRs) over time between the groups (P = 0.0038) (Fig. 4). All pregnancies occurred within 11 months of surgery. A 27.3% (6/22) crude PR was achieved in those patients with mean laparoscopy scores < 9 (normal tubes and mild disease) as opposed to 10% (2/20) of those with mean laparoscopy scores ≥ 9 (moderate-to-severe disease). A single ectopic pregnancy was reported in a patient who underwent bilateral neosalpingostomy with mean tubal scores of 16 and 17 by laparoscopy and salpingoscopy, respectively.

DISCUSSION

In this study, we have compared findings obtained from two scoring systems designed to standardize observations from salpingoscopy and laparoscopy regarding fallopian tube pathology. We have demonstrated that fallopian tubes with minimal pathology appreciated at laparoscopy may have more significant intraluminal disease appreciated at salpingoscopy. In contrast, laparoscopic and salpingoscopic findings do correlate well in cases of more severe distal tubal disease.

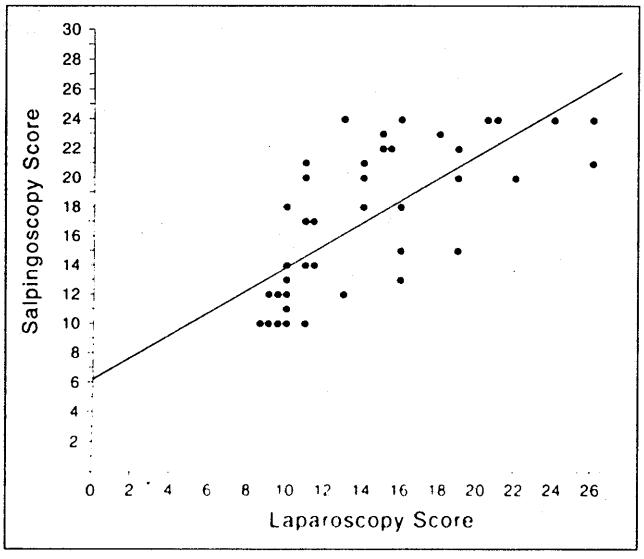

Figure 2 Correlation between salpingoscopy and laparoscopy scores in group II (n = 40 tubes) with moderate-to-severe disease based on laparoscopic criteria. r = 0.681

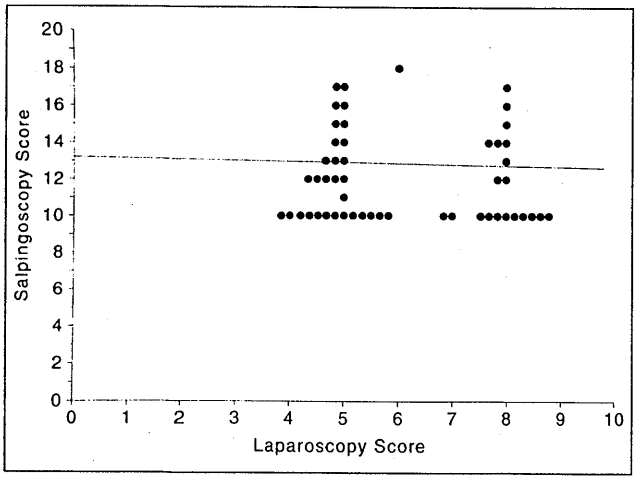

Figure 3 Correlation between salpingoscopy and laparoscopy scores in group I (n = 51 tubes) with normal findings or minimal disease based on laparoscopic criteria. r = 0.0114

patient. The rates for those patients with a best single tubal salpingoscopy score ≤ or > 12 were 33.3% (8/24) and 0% (0/21), respectively. The crude PRs for patients with worst single tubal salpingoscopy score ≤ or > 12 were 35% (7/20) and 4% (1/25), respectively. No intrauterine pregnancies were achieved in any patient with a single tubal salpingoscopy score > 14. All but one of the intrauterine pregnancies occurred in patients whose individual tubal salpingoscopy scores were ≤12. These results confirm those of other investigators who have demonstrated that salpingoscopic findings were valid as predictors of pregnancy outcome for patients with distal tubal disease (5, 16, 17) Our data suggest that salpingoscopy scores are perhaps better predictors of pregnancy outcome in patients with suspected distal tubal occlusion or unexplained infertility than more widely accepted values derived from laparoscopic findings. The sensitivity and specificity of salpingoscopy scores were 87.5 and 67.6, respectively, employing mean values > 12 to reflect moderate-to-severe disease. In contrast, the sensitivity and specificity of mean laparoscopic scores ≥ 9 reflecting moderate-to-severe disease were 75 and 52.9, respectively. All pregnancies occurred within 11 months, thus suggesting that more prolonged observation even in patients with minimally affected tubes may not be warranted. De Bruyne et al. (17) reported that no intrauterine pregnancies were achieved after microsurgical salpingostomy in patients with intratubal adhesions diagnosed at salpingoscopy in comparison with a 59% PR obtained in those without such findings.

In conclusion, transfimbrial salpingoscopy represents a valuable adjunct to the evaluation of the human fallopian tube. The ability to directly visualize intraluminal adhesions and mucosal abnormalities provides valuable information not otherwise obtained employing more traditional diagnostic techniques. The prognostic value of these findings provides support to the suggestion that this method should become a more routine component of the infertility evaluation. Universal acceptance of an individual scoring system awaits the result of larger scale multicenter trials.

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