Diagnostic laparoscopy in primary and secondary infertility

Al-Sakkal Ghada Saddallah C.A.B.O.G.
Department of Obs. And Gyn., Hawler Medical University

ABSTRACT
Objective: To compare the diagnostic efficacy of laparoscopy between primary and secondary infertility and to define the abnormalities visualized in the pelvis.
Design: Prospective study.
Setting: Azadi general hospital in Kirkuk city, in the north of Iraq.
Patients and Methods: One hundred and sixty nine women underwent laparoscopy as a part of investigations for infertility. 107 patients were suffering from primary infertility and 62 patients were suffering from secondary infertility.
Results: Uterine abnormalities as uterine fibroids were found in 13.1% of primary infertility group (1st group) and 14.5% of secondary infertility group (2nd group). Unicorn uterus with presence of only right tube was found in one patient in the 1st group (0.9%).
Unilateral tubal patency could not be elicited in 4.7% of 1st group and 16.1% in the 2nd group while bilateral tubal patency could be elicited in 16.8% of the 1st group and 35.5% of 2nd group. Pelvic adhesions were found in 19.6% of 1st group and 25.2% of 2nd group. Endometriosis was found in 12.1%, 2.8% in 1st and 2nd group respectively. Polycystic ovaries were found in 43.9%, 11.2% in 1st and 2nd group respectively.
Conclusion: Although the incidence of tubal factor and pelvic adhesions are significantly higher in the secondary infertility group, polycystic ovaries and endometriosis are more commonly visualized in the primary infertility group in this series and still there is considerable number of other pelvic abnormalities in the 1st group. So laparoscopy is valuable in both groups especially if laparoscopic therapeutic procedures are performed at the same time when indicated as in clomid resistant polycystic ovaries, endometriosis and pelvic adhesions.

Introduction
Infertility is defined as inability of couple to obtain a clinically recognizable pregnancy after twelve months of unprotected intercourse.1
The basic investigation in infertility relates to assessment of the uterine cavity, fallopian tubes and ovulation in the female partner.2
This study was done to review the value of laparoscopy as a diagnostic tool in primary and secondary infertility.
Laparoscopy allows the visualization of the different aspects of the pelvis.
Uterine abnormalities, tubal patency, serosal aspects of the tubes, tubo ovarian motility and adhesion could be evaluated. Ovarian morphology assessed and endometriosis can be diagnosed macroscopically. There is another test for tubal patency, which is hysterosalpingography, but although it is not an invasive procedure the information gained by laparoscopy which are mentioned above can not be evaluated by this test. This study showed the percentage of different morphological abnormalities visualized in the pelvis in primary and secondary infertile women, which help in taking further steps in management.

Patients and Methods
169 women where subjected for laparoscopy as a part of investigations for infertility, from January 1997 till the end of June 2001. 107 women were suffering from primary infertility and 62 women were suffering from secondary infertility. The duration of primary infertility ranged from 1-19 years, and the age of women ranged from 18-42 years. The duration of secondary infertility ranged between 1-17 years and the age of women ranged between 25-46 years. The patients were examined and investigated before laparoscopy. Semen analysis was within normal ranges in all male partners. Some of these women were diagnosed and treated before laparoscopy but was of no benefit. General anesthesia was given for all patients. Umbilical route was chosen for insufflation and for introduction of telescope. Inspection of uterus, Fallopian tubes, ovaries and pouch of Douglas was done carefully. Hydrotubation of the tubes was performed using transcervical methylene blue injection for assessment of tubal patency.

Results
Laparoscopic findings of 107 women with primary infertility (1st group) and 62 women with secondary infertility (2nd group) revealed as shown in the figure below. Uterine fibroids in 14 cases (13.1%) of 1st group and in 9 cases (14.5%) of 2nd group, 1 patient of the 1st group had unicorn uterus with presence of only right tube (0.9%). Unilateral tubal patency was not elicited in 5 patients (4.7%) of 1st group and 10 patients (16.1%) of 2nd group. Bilateral tubal patency could not be elicited in 18 patients (16.8%) of 1st group and in 22 patients (35.5%) of 2nd group. Pelvic adhesions were found in 21 patients (19.6%) of 1st group and in 27 patients (25.2%) of second group. Endometriosis was seen in 3 patients in (12.1%) of 1st group and in 3 cases (2.8%) of 2nd group. Polycystic ovaries were found in 47 patients (43.9%) of 1st group and in 12 patients (11.2%) of 2nd group. Ovarian cyst was found in 8 patients (7.5%) of 1st group and in 4 patients (3.7%) of 2nd group. No obvious abnormality visualized in 21 patients of 1st group (19.6%) and in 10 patients of 2nd group (9.3%).
Discussion
One in six couples present to health practitioner complaining of infertility. Diagnostic laparoscopy is considered and discussed after other infertility work up for both partners (proper clinical assessment, transvaginal ultrasonography, semen analysis, hormonal profile, check of cervical factor and hysterosalpingography).
This series involves patients who had undergone this infertility work up, but their problems were not solved. Some of them had treatments before laparoscopy for ovulatory dysfunction and were of no benefit.
The proper assessment of pelvic pathology requires laparoscopy with transcervical methylene blue instillation.
The assessment of tubal patency is important for assessment of infertility, but confirmation of tubal patency does not necessarily mean that there is normal function. Pelvic adhesions are obvious through laparoscopy. Polycystic ovaries can be diagnosed or confirmed through laparoscopy. The polycystic ovary syndrome is the commonest endocrine disturbance affecting women. The ovaries are enlarged with multiple small cysts 2-8 millimeters in diameter. Drilling of the ovaries can be done at the same time as a therapeutic measure in polycystic ovaries.
I have high incidence of this disease in this series because of the prevalence of this disease in our community and patients who were clomid resistant were subjected for laparoscopy as a diagnostic procedure to confirm the diagnosis, exclude other pelvic pathology and for therapeutic measures.
Although the relationship between endometriosis and infertility in the absence of pelvic distortion remains uncertain, but laparoscopy remains the main tool of diagnosis and scoring because it allows the visualization of the different aspects of pelvic endometriosis i.e. superficial implants, deep lesions and associated adhesions. Staging is based on a score attributed to each location in order to establish a prognosis in terms of the patient’s reproductive performance. 

Uterine fibroid is common in infertile patients as noticed by many authors. The incidence of infertility in patients with uterine fibroid reaches 30-40% (12-15) the role of uterine factor in infertility is not well established yet, but the future may obviate the role.

In this study the yield of diagnostic laparoscopy was beneficial in primary and secondary infertility group which is different from the study done by Hovav Y.et al who concluded the diagnostic yield of laparoscopy in primary infertility group is low in the absence of indications of mechanical factor. My study did not concentrate on mechanical factors only but it included ovarian factors, uterine factors and endometriosis which may contribute to infertility that is why it was beneficial in primary and secondary infertility groups.

This series showed high incidence of relevant findings because the duration of infertility ranged from 1-19 years here we expect the patients to have previous problems as previous abdominal operations, pelvic inflammatory disease and clomid resistant polycystic ovary syndrome.

Further work is needed for assessment of the role of fibroids in infertility.

In conclusion the diagnostic yield is valuable in both groups, although the incidence of tubal factors and pelvic adhesions are significantly higher in the secondary infertility group. Polycystic ovaries and endometriosis are more commonly seen in the primary infertility group in addition to other pelvic abnormalities.

The benefit will be more if laparoscopic therapeutic procedures are performed at the same time when indicated in clomid resistant polycystic ovaries, endometriosis and pelvic adhesions.

References
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