# COMPARISON OF DOUBLE PUNCTURE VERSUS SINGLE PUNCTURE DIAGNOSTIC LAPAROSCOPY IN INFERTILITY WORK UP

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## SUMMARY

**222 laparoscopies were prospectively studied for comparison of single puncture and double puncture techniques. Subtle pathology such as mild endometriosis, minimal adhesions, altered tubo ovarian disposition, tubal phimosis and the like were picked up with a distinctly higher frequency on double puncture which were missed on single puncture laparoscopy. Thus double puncture is recommended for consideration as a standard procedure for adequate infertility work up.**


## *INTRODUCTION*

The role of diagnostic laparoscopy in investigations of infertility is well established (Corson - 1979, Taylor and Cumming 1979, Musich and Behrman 1982). However, the timing of this procedure and systematization of the technique remains to be standardised. Many laparoscopists use single puncture (non-manipulative) technique and others use double puncture techniques manipulating the pelvic contents and visualising them.

This prospective study has been carried out to compare these two techniques with an aim to standardise the superior one.

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## *MATERIALS AND METHODS*

This prospective study was carried out in the third unit of the dept. of Obstetrics and Gynecology, Medical College and SSG Hospital, Baroda over a period of 6 years from 1st Jan. 1987. All these were patients for infertility work up. Those cases in whom laparoscopy was done for reversal of prior tubal sterilization were not included in the study.

All patients had experienced atleast a year of unprotected regular intercourse. They were evaluated by history and physical examination, ovulatory studies, post coital tests, semen analysis and ancillary tests for possible endocrine abnormalities when indicated. Those patients with a strong suspicion of anovulation from history or investigations

were given a three months trial of ovulation induction and if conception did not occur, were subjected to laparoscopy, thereafter.

Initially the patients were subjected to single puncture technique through the main subumbilical wound and evaluated. There after through a suprapubic midline second puncture a Verres needle or a grasping forceps was passed and the pelvic contents especially the tubes, ovaries, utero-ovarian ligaments, etc. were grasped or lifted and turned thus allowing the structure under examination to be visualised on all its external surface. Additional information if any which was missed on single puncture, was noted.

The results so obtained were analysed and discussed in light of available literature.

*RESULTS*

During this study period of six years from 1st Jan. 1987 to 31st Dec. 1992, total 222 laparoscopies were enrolled for this study in the unit. 39 laparoscopies were not included as they were done for reversal of sterilization as part of its preoperative evaluation. Amongst the 222, 157 were cases of primary infertility and 65 were cases of secondary infertility (70.72% and 29.28%) respectively.

Of these 222, 50.9% patients had no pelvic pathology detected on laparoscopy. However, amongst those in whom pathology was found, P. I. D. leading to adhesion formation was most prevalent, as shown in Table I.

This table clearly elucidated the comparison of the two techniques. Endometriosis which was picked up in 3 cases on single puncture could be found in 5 additional cases on second puncture. This was confined to the other surfaces of ovary or posterior peritoneum or in Cul-de-Sac hidden from

**Table I**

**Laparoscopy findings**

| Findings | No. | % |
|---|---|---|
| Pelvic Pathology found | 109 | 49.1 |
| P. I. D. (Adhesions) | 68 | 62.4 |
| Tubal Pathology | 28 | 25.8 |
| Endometriosis | 8 | 7.3 |
| No pathology found | 113 | 50.9 |

**Table II**

**Information revealed by different techniques**

| Pathology | Total | On Single Puncture | | On Double Puncture | |
|---|---|---|---|---|---|
| | | No. | % | No. | % |
| Endometriosis | 08 | 03 | 26.67 | 05 | 73.33 |
| Minimal adhesions | 38 | 14 | 27.14 | 24 | 72.86 |
| Dense adhesions | 30 | 21 | 70.00 | 09 | 30.00 |
| Vascularity | 11 | 09 | 81.82 | 02 | 1.18 |
| Obliteration of Pouch | 08 | 02 | 25.00 | 06 | 75.00 |
| Altered T. O. disposition | 58 | 16 | 27.59 | 42 | 72.41 |
| Tubal phimosis | 09 | 02 | 22.22 | 07 | 77.78 |

the single puncture view. Similarly, minimal flimsy adhesions were found in 24 (72.86%) more cases. These cases would also have otherwise been labelled as those without any abnormal findings. However, dense extensive adhesions were usually too obvious to be missed even on single puncture, without lifting the ovaries or tubes. Vascular congestion including that of pelvic congestion syndrome was also quite obvious to be missed at single puncture unmanipulated viewing. However in two cases, this vascularity became obvious only on displacing the ovary by second puncture aids and observing the broad ligament, then after.

Pouch of Douglas at times remained filled by intestines, prolapsed ovaries or omentum. It was with the help of second puncture that these were displaced out either with the veress needle or grasping forceps and in six cases this obliteration because of adhesions became visible.

Tubo-ovarian disposition and tubal phimosis were best seen by double puncture manipulation of the tubes and ovaries, also shown in Table II. In detecting these pathologies, double puncture technique was three times more effective than single puncture.

There were 38 cases in this study who were labelled as not having ovulatory stigma nor corpus luteum on single puncture. However on detailed visualisation of the other ovarian surface through double puncture ovulatory stigma was seen.

## *DISCUSSION*

The results of this study are very obviously hinting at the superiority of double puncture laparoscopy in infertility work up. Pathologies like minimal or mild endometriosis or tubal phimosis require a detailed and proper visualisation of pelvic viscera. It is here that manipulation and all exterior surface examination of tubes and ovaries and Pouch of Douglas becomes vital. These subtle pelvic pathologies like endometriosis of cul de sac or antimesentric surface of ovary and adhesions involving the tubes, ovarian fossa and Pouch of Douglas when flimsy tend to be missed, on single puncture. Importance of tubal phimosis and altered tubo ovarian disposition in preventing an ovum pick up is now well understood. These pathologies would have been missed completely in nearly 50% of cases had double puncture manipulation and visualisation of tubes not been carried out. These findings are similar to that of Chong and Elligers (1987). The high yield of abnormal pelvic findings (49.1%) is also similar to the results of Drake et al (1977) and Goldenberg and Magendantz (1976).

On the basis of these results the author feels courageous to recommend this technique of laparoscopy as a standard procedure for laparoscopy in infertility work up.

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## *REFERENCES*

1. *Chong A., Elligers K. : Int. J. Fertil : 32 (1), 38, 1987.*
2. *Corson S. L. : Fertil Steril : 32, 359, 1979.*
3. *DRake T. S., Tredway D., Buchanan G. : Obstet. Gynec. : 50, 644, 1977.*
4. *Goldenberg R. L., Magendantz H. G. : Obstet. Gynec. : 47, 410, 1976.*
5. *Musich J. R., Behrman S. J. : Am. J. Obstet. Gynec. : 143, 293, 1982.*
6. *Taylor P. J., Cumming D. C. : Am. Probl. Obstet. Gynecol. : 2, 1, 1979.*