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**Objective:** To compare manual and computer analysis of sperm morphology assessed by strict criteria using two different staining techniques.

**Design:** Prospective study.

**Materials and Methods:** Semen samples obtained from randomly chosen donors (n=6) and patients (n=15) who applied for infertility evaluation were studied. From each patient slides were prepared from liquified semen samples and following double-wash. Two slides (one whole semen, one washed) were stained with Papanicolaou and two were stained with Diff-Quick. Slides from semen samples were analyzed manually and those from washed samples were analyzed manually and also two times using a sperm morphology analyzer (IVOS, Hamilton-Thorne Research, Beverly, MA). All slides were analyzed by two observers in order to examine the interobserver variation. Manual analysis of semen and washed samples, manual and computer analysis, and the readings of the two observers were compared using the Bland and Altman method for both staining techniques. Interclass coefficient (ICC) is an index of the level of agreement between two methods and it can range from 0 to 1 (0=no agreement, 1=perfect agreement).

**Results:** A good correlation was obtained between manual analysis of semen and washed samples with both staining techniques (ICC=0.86 and 0.83). Although there was a good agreement between first and second readings of Diff-Quick stained slides by IVOS (ICC0.81), we did not observe the same correlation between first and second computerized readings of the papanicolau stained slides (ICC=0.60). For both staining techniques the agreement between manual and computer analysis showed an ICC=0.59 for Diff-Quick, and an ICC=0.53 for Papanicolaou, and in both methods computer readings were higher than manual readings. The agreement between first and second observer for manual analysis was 0.43.

**Conclusion:** Although it has been reported that there is a good correlation between sperm morphology assessed by strict criteria and IVF results, there is still no universal standardization and there are wide intra and interobserver variations. Our results demonstrated that the Diff-Quick staining is reliable for both manual and computer analysis. Further studies are needed to obtain more reproducible results which may lead to the introduction of the computerized sperm analysis into routine clinical practice.

## P-088

**Bacteriological Activity of Frozen/Thawed Semen Samples.** M. Oquendo, J. Hariprashad, M. Feliciano, L. T. Colombero G. D. Palermo. The Center for Reproductive Medicine and Infertility, The New York Hospital-Cornell Medical Center, New York, NY.

**Objectives:** In an infertility clinic semen samples are stored by cryopreservation and are not utilized unless shown to be free of bacterial infection. If the culture is

positive, patients are treated and infected samples are discarded. This action could be reconsidered if a bactericidal effect of cryopreservation were demonstrated.

**Design:** Raw samples were cultured prior to cryopreservation. The samples were kept in liquid nitrogen at -196°C until the culture results were obtained. The samples were then thawed and reassessed for bacterial growth.

**Materials and Methods:** Aseptically collected semen samples were obtained by masturbation from 22 healthy individuals and cryopreserved for future use. Baxter Culturette system swabs were used to identify aerobic and anaerobic bacteria, and Gen-probe swabs were used for Chlamydia trachomatis and Neisseria gonorrhoeae. The samples were then cultured for bacterial growth and anti-biogram.

**Results:** Microorganisms in semen samples before and after cryopreservation were as follows:

Bacteria	Before cryopreservation	After thawing (%)
Enterococcus faecalis	6	4 (66.6)
Escherichia coli	4	0
Streptococcus viridians	4	1 (25.0)
Diphtheroids	3	1 (33.3)

In four additional samples pathogens such as Pseudomonas aeruginosa, Eubacterium, Streptococcus agalactiae and Enterobacter aerogenes were identified in the fresh semen but undetectable after thawing.

**Conclusions:** Cryopreservation appears to have a bacteriostatic or bactericidal effect on the most common pathogens present in seminal plasma. Thus, post-thaw specimens with negative culture might be used for assisted reproduction whether other samples are not available.

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## Surgical Infertility

### P-089

**Office Based Diagnostic Percutaneous Testis Biopsy.** J. H. Lumerman, B. C. Mellinger. Department of Urology, Winthrop University Hospital, Mineola, NY.

**Introduction and Objectives:** Percutaneous testicular biopsy correlates with open biopsy. Successful in-vitro fertilization (IVF) and pregnancy have been reported with testicular sperm extraction (TESE), thus the indications for testis biopsy have expanded. We examined the results, intraoperative findings and eventual patient outcomes in 22 patients with azospermia or severe oligospermia (<5 million sperm/ml).

**Methods:** 22 patients, age 29-48, underwent percutaneous testis biopsy in the office with local anesthesia. Work-up included: history, physical exam, testicular volumes, serum Follicle stimulating hormone (FSH) and testosterone and two semen analyses. Biopsy was performed with

an 18 G core biopsy system. Two passes with the biopsy gun were made: bilaterally in the majority of patients. A touch imprint was obtained for cytology and the remaining tissue was placed in Bouin's solution for pathologic examination.

**Results:** One patient developed a scrotal hematoma which responded to aspiration with no further treatment needed. No adhesions or ductal injuries were observed in the patients who were surgically explored or received TESE. Adequate tissue was obtained for evaluation in all patients. The cytology coincided with the pathologic diagnosis in all but one patient. Histologic diagnoses included: normal (4); hypospermatogenesis (8); maturation arrest (3); Sertoli cell only (SCO) (3); and SCO/focal spermatogenesis (4). One patient had ductal reconstruction with a resultant pregnancy. Five patients had TESE: one had no sperm retrieved and underwent donor sperm IVF with a resultant pregnancy. 10 of the 22 patients underwent the therapeutic modality as recommended by the Urologist. Of these, a 70% fertilization rate and 50% pregnancy rate was obtained. 5 pregnancies were obtained through the following modalities: artificial insemination with donor sperm (AID) (2); ICSI (1); TESE/ICSI (1); and ductal reconstruction (1). All patients returned to normal activity within 24 hours.

**Conclusion:** Percutaneous testis biopsy is a safe, reliable procedure which can be performed comfortably in the office setting. It consistently yields sufficient diagnostic information to allow for therapeutic decision making. The cost is significantly lower than a comparable open procedure.

## P-090

**Alternate Prognostic Classification for Adnexal Adhesions Divided Into Peritubal Adhesion and Periovarian Adhesion: Severe Periovarian Adhesions Were the Major Cause of Infertility.** Y. Nagata, K. Honjou, M. Shindou, T. Kawarabayashi, K. Shirakawa. Dept of OB/GYN School of Medicine, Fukuoka University, Fukuoka City, Fukuoka, Japan.

**Objective:** In this study, we modified the prognostic classification for adnexal adhesions, which divided into peritubal and periovarian adhesions, because we evaluate the ovarian and tubal functions individually. The first purpose of this study is to evaluate our modified prognostic classification. The second purpose is to clarify the effects of periovarian adhesions to ovarian functions.

**Design:** A retrospective and randomized study. Evaluations for adnexal adhesions were scored using the AFS classification of adnexal adhesions. The total scores of peritubal adhesions or periovarian adhesions were applied each to differentiate between minimal (total scores; 0–5), mild (6–10), moderate (11–20) and severe adhesion (21–32).

**Material and Methods:** Two hundred and five patients with infertility undergoing laparoscopic examinations at Fukuoka University Hospital between January 1989 and July 1995 were reviewed. Pregnancy rates after the laparoscopy were evaluated into minimal, mild, moderate and severe groups of peritubal or periovarian adhesions. Fur-

thermore, IVF-ET results within 2 years before and after the laparoscopic examinations were analyzed according to periovarian adhesion groups.

**Results:** Pregnancy rates, excluding IVF-pregnancies, in severe peritubal adhesions (7.1%) were significantly lower than those in minimal, mild and moderate adhesions (48.3%, 32.4% and 40.4%, respectively,  $p < 0.01$ ), however, pregnancy rates including IVF-pregnancies showed no significant differences between minimal, mild, moderate and severe peritubal adhesions (53.3%, 37.8%, 55.8% and 39.3%, respectively). Pregnancy rates excluding or including IVF-pregnancies in severe periovarian adhesions (10.5% and 15.8%) were significantly lower than those in minimal (39.1% and 55.7%) and mild (36.6% and 50.0%) adhesions ( $p < 0.05$ ). The mean number of oocytes recovered ( $7.5 \pm 4.5$ ), fertilization rates ( $58 \pm 32\%$ ) and the mean number of embryos transferred ( $2.1 \pm 1.2$ ) in the severe periovarian adhesions were significantly lower than those in the minimal periovarian adhesions ( $10.0 \pm 6.0$ ,  $71 \pm 26\%$ ,  $2.7 \pm 0.8$ , respectively,  $p < 0.01$ ). The severe (8%) and moderate (21%) periovarian adhesions had significantly lower pregnancy rates than did the minimal (61%) and mild (44%) adhesions in the IVF-ET results.

**Conclusion:** The severe peritubal adhesion group with a total score of more than 21 did not expect pregnancy without a surgical procedures or an IVF-ET. The scoring of peritubal adhesions was useful to decide a future treatment plan for the infertile patients. The scoring of periovarian adhesions was useful to predict pregnancy outcomes. Severe periovarian adhesions might be the major factor of a poor-response to gonadotropin and a low quality of oocytes.

## P-091

**Infertility Surgery: A Review of Laparoscopic Myomectomy and Adenomyomectomy Using the Nd-Yag Laser.** C. Yap, F. H. M. Tsakok. Department of Obstetrics and Gynaecology, Singapore General Hospital, Outram Road, Singapore.

**Objectives:** Laparoscopic Nd-Yag laser myomectomy and adenomyomectomy was reviewed to assess pregnancy outcome and safety when performed for subfertility.

**Design:** A retrospective study of 142 women between 1995 and 1996.

**Materials and Methods:** 142 women who were seen for subfertility at a tertiary level infertility clinic between 1995–1996 were documented to have leiomyomas or adenomyosis on transvaginal ultrasonography. A total of 90 myomectomies and 52 adenomyomectomies were performed. Incision into the myometrium was done with the Nd-YAG laser and the fibroid enucleated or adenomyoma excised. The resulting defect in the myometrial wall was not sutured but covered with an adhesion-barrier material.

**Results:** The pregnancy rate was 23.3% in the myomectomy group and 23.1% in the adenomyomectomy group. Among those who had an adenomyomectomy, 2 had vaginal deliveries, 4 have ongoing pregnancies, 4 had miscarriages, 1 had a caesarean section and 1 had an ectopic