



**AMERICAN SOCIETY FOR
REPRODUCTIVE MEDICINE**



American Society for Reproductive Medicine 2019 Scientific Congress & Expo
October 12 to 16, 2019 • Philadelphia, PA, USA

Title:

SURGICAL SPERM EXTRACTION VS. SEMEN CENTRIFUGATION: METHOD OF SPERMATOZOA RECOVERY DOES NOT CORRELATE WITH EUPLOIDY RATES IN PATIENTS WITH CRYPTOZOOSPERMIA

Authors:

Carlos Hernandez-Nieto, MD¹, Joseph A. Lee, BA¹, Martha Luna-Rojas, MD¹, Tamar Alkon, MD¹, Christine Briton-Jones, PhD, HCLD^{1,2}, Natan Bar-Chama, MD^{1,2}, Alan B. Copperman, MD^{1,2} and Benjamin Sandler, MD^{1,2}

Affiliations:

1. Reproductive Medicine Associates of New York, 635 Madison Ave 10th Floor New York, New York, United States, 10022
2. Icahn School of Medicine at Mount Sinai, Klingenstein Pavilion 1176 Fifth Avenue 9th Floor New York, New York, United States, 10029

Objective:

Cryptozoospermia is defined as spermatozoa not identified in the ejaculate, but observed in pellet following centrifugation (World Health Organization). Fertility specialists differ in opinion whether there might be benefits to surgically retrieving sperm in these patients. Previous studies have described a correlation between testicular extracted sperm and spermatid aneuploidy in patients with non-obstructive azoospermia. However, there are currently no peer reviewed publications associating rates of embryonic ploidy with Cryptozoospermia. The aim of this study is to evaluate the rate of embryonic euploidy in blastocysts derived from testicular versus ejaculated sperm in cryptozoospermic patients

Design:

Retrospective cohort analysis

Materials and Methods:

The study included couples who suffer from Cryptozoospermia and underwent an autologous IVF cycle(s) with preimplantation genetic testing (PGT-A) from 2014 to 2019. Only cases where



AMERICAN SOCIETY FOR
REPRODUCTIVE MEDICINE



oocyte insemination was conducted with intra-cytoplasmic sperm injection (ICSI) were evaluated. Cohorts were separated based on the source of sperm (Ejaculated vs. Testicular (TESE)). Demographic and clinical embryology parameters were compared. Student's t-test, Wilcoxon' rank test, chi-square test, and multivariate logistic regression models were used for data analysis

Results:

Of the 87 IVF/PGT-A cases on cryptozoospermia patients (n=573 blastocysts) included, 74 cases (n= 474 blastocysts) utilized ejaculated sperm while 13 cases (n= 99 blastocysts) utilized testicular sperm. No significant differences were found in demographic and stimulation parameters among cohorts. No differences between the ejaculated and testicular cohorts were found in fertilization (63.2%; 61.1%, p=0.32); blastulation (64.5%; 66.6%, p=0.69); and rate of embryo euploidy (49.7%; 52.1%, p=0.76) respectively. No differences were found in rate of cycle cancellation due to unavailable embryos for TE biopsy (18.9% vs 7.6%, p=0.32). After adjusting for female and male's age, BMI, AMH, and number of biopsied embryos, there were no association with utilizing surgical extracted sperm and lower odds of embryo euploidy (OR 0.69, CI95% 0.11-4.3, p=0.69)

Conclusion:

Normal chromosomal composition is a primary driver of embryonic competence and reproductive success in patients undergoing ART. In our review of the literature, this is the first study analyzing the euploidy rate on a large cohort of embryos in patients with Cryptozoospermia. Our data demonstrate that the odds of the resulting embryo being euploid is not associated with the source of sperm recovery. Regardless of the method of collection, a number of researchers have raised concerns about genetic and epigenetic risks of utilizing sperm cells prone to increased DNA integrity damage or exposed to different environmental factors (i.e. free oxygen radicals). Our study findings show that there is no genomic advantage to surgical sperm retrieval in cryptozoospermic patients. These data can be used to counsel patients who suffer from cryptozoospermia about the potential chromosomal composition of their embryos.