

4. DESCRIPTIVE STUDY OF DIAGNOSTIC FINDINGS IN MALE WITH SEVERE OAT SYNDROME AND AZOOSPERMIA



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Introduction. It has been established that one of the most prevalent causes of male subfertility is oligoasthenoteratozoospermia (OAT). About 1% of men in the general population and 10%–15% of men who are infertile have azoospermia. Azoospermia exists in two forms: obstructive and non-obstructive. The diagnosis of male infertility, ranging from mild OAT to complete azoospermia, requires a comprehensive evaluation to ascertain the underlying causes.

Aim of study. The aim of the study was to do the analytical description of diagnostic findings in male with severe OAT syndrome and azoospermia.

Methods and materials. This retrospective analysis encompassed 90 patients diagnosed with severe OAT syndrome and azoospermia. Inclusion criteria were based on semen quality parameters: sperm concentration ≤ 5 million/mL, inclusive of azoospermia and cryptozoospermia. Evaluated factors included age, body mass index (BMI), comprehensive semen analysis, serum vitamin D3 levels, scrotal ultrasonography, and targeted genetic assessments (karyotyping, AZF microdeletions, and CFTR mutations). Participants were split into two subgroups, with 45 individuals in each, for the qualitative and quantitative analysis of seminal material in the study group: severe OAT and azoospermia.

Results. The average age was 32.83 ± 5 , calculated BMI (27.1 ± 4) indicating overweight. In the group with severe OAT, the average values for both the concentration and total sperm count were 1.77 ± 2 and 5.59 ± 8 , respectively. The total motility (12.64 ± 16), progressive motility (7.93 ± 12), vitality (13.64 ± 18), and morphology (1.02 ± 2) were significantly reduced. In this group, agglutination was absent, and mild aggregation was present in 4.4% of cases. An elevated number of germ cells and leukocytes in semen (4.1 ± 8 and 1.71 ± 3.3 , respectively) were observed. Vitamin D levels were deficient (29.37 ± 9.3 ng/ml). The levels of FSH and LH were elevated (14.55 ± 13.22 IU/L and 8.42 ± 5.3 IU/L, respectively). The ultrasound evaluation of the scrotum was conducted, estimating the average volume of the right testicle (12.50 ± 5.47) and the left testicle (12.30 ± 5.09). Changes in echotexture and echogenicity of the right testicle were identified in 24.6% and 31.5%, respectively. For the left testicle, altered echotexture was present in 15.6% and abnormal echogenicity in 25.5%. Testicular calcifications were present on the right in 4.4% and on the left in 7.7%. Varicocele on the left of varying degrees was identified in 17.7%. Genetic evaluations revealed Y chromosome microdeletions in 4.4%, with 92.2% having a normal karyotype and 7.8% exhibiting karyotypic abnormalities. A single case of a CFTR gene mutation was identified.

Conclusion. Males with severe OAT syndrome and azoospermia has higher BMI, FSH and LH levels comparable with normal range limit, but deficit of vitamin D being noticed. Genetic abnormalities were found in 13.3% of the cases.