

## Semen Analysis in Male Infertility

Drugkar Amol Z.<sup>1,\*</sup>, Gosewade N.B.<sup>2</sup>, Gangane S.D.<sup>3</sup>, More Rakhi M.<sup>4</sup>, Drugkar Swati A.<sup>5</sup>

<sup>1</sup>Asso. Prof., Dept. of Anatomy, <sup>2</sup>Asso. Prof., Dept. of Physiology,

<sup>5</sup>Senior Resident, Dept. of Obstetrics & Gynecology, C.C.M. Med. Col. Durg, India

<sup>3</sup>Prof. & Head, Dept. of Anatomy, Terana Med. Col, Mumbai, India

<sup>4</sup>Asso. Prof., Dept. of Anatomy, KJSMC, Mumbai, India

**\*Corresponding Author:**

E-mail: dramoldrug@yahoo.co.in

### Abstract

The present study was carried out to find out the total sperm count in infertile males. 70 males referred for complaints of infertility were included in the present study. Semen analysis of the infertile males was done. Among the total 70 males, 54 had normal sperm count. Remaining 16 patients were having low sperm counts, 8 males had oligospermia while azoospermia was observed in other 8 males. The findings of the present study were correlated with the previous studies. It is concluded that the semen analysis of male partner should be one of the primary and essential investigations in infertile couples.

**Key Words:** Infertility, sperm count, azoospermia, oligospermia

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### Introduction

Infertility is a disorder of reproduction representing a significant social, medical & economic burden for individual and the society<sup>2</sup>. It affects on an average 25% couples worldwide. In India also infertility is a common and distressing problem, usually infertile couples report late for evaluation<sup>10</sup>. Infertility affects 10-15% of couples of childbearing age, and nearly half of these cases are attributable to the male partner and particularly sperm related problems. Approximately 10% of infertile men are azoospermic. Semen analysis has long represented the standard test for evaluating male fertility. It is appropriate to obtain a semen analysis early in working with an infertile couple. It is not acceptable to put a woman through various medical procedures and tests without knowing the status of her partner's semen<sup>5</sup>. The average sperm count today is between 20 and 40 million per milliliter in the Western world, having decreased by 1-2% per year from a substantially higher number decades ago<sup>4</sup>.

Formerly, females alone shouldered the responsibility for infertility. Today, however, it is realized that the male is equally likely to be affected as his mate. Male & female factors contribute equally to infertility in a couple<sup>3</sup>.

### Aim & Objectives

The present study was carried out

1. To find out total sperm counts in infertile males
2. To compare & correlate the data with the previous studies

### Material and Methods

The study was carried out in a tertiary care hospital. Among the different cases referred, 70 males referred for complaints of infertility were included in the present study. Semen Analysis of these patients was done. These patients were prepared for semen analysis. They were advised following instructions to get the best sample

- avoid ejaculation for 24 to 72 hours before the test
- avoid alcohol, caffeine, and drugs such as cocaine and marijuana two to five days before the test
- avoid any hormone medications

After the preparation semen samples were collected from the patients by masturbation. Two main factors were considered to get a good testing sample. First semen was kept at body temperature. Second, the semen was delivered to the testing facility within 30-60 minutes after masturbation.

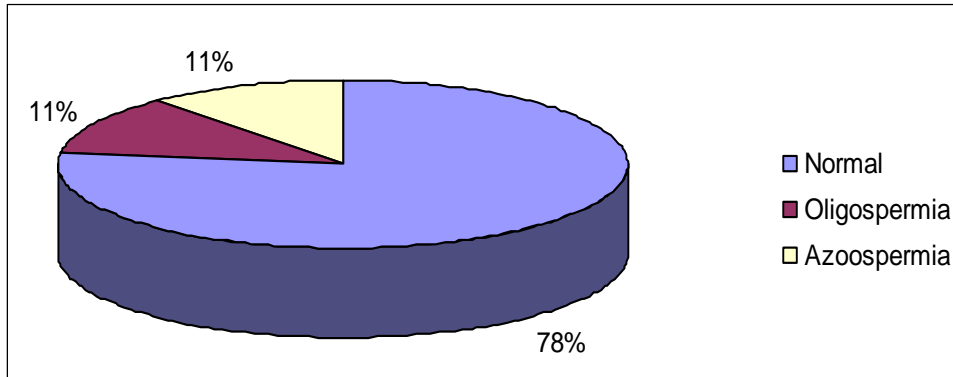
Semen analysis was done to find out sperm shape, movements, PH, volume, sperm count. In present study total sperm count was taken into consideration.

### Observations and Results

Total 70 patients with infertility were evaluated. Fifty four out of 70 (77.16%) patients showed normal sperm count. Eight patients (11.42%) showed oligospermia and eight patients (11.42%) showed azoospermia.

**Table 1: Showing Distribution of Semen Analysis Study**

Semen Analysis	Total No. of Patients (n=70)	Percentage
Normal	54	77.16
Oligospermia	08	11.42
Azoospermia	08	11.42



**Fig 1: Pie Diagram Showing Distribution of Semen Analysis Study**

**Table 2: Showing the Patient Wise Sperm Count**

Sr. No. of Patients	Sperm Count in millions/ml	Sr. No. of Patients	Sperm Count in millions/ml	Sr. No. of Patients	Sperm Count in Millions/ml
01	42	26	47	51	41
02	43	27	42	52	31
03	39	28	00	53	28
04	34	29	48	54	00
05	13	30	36	55	34
06	47	31	24	56	00
07	40	32	16	57	41
08	42	33	45	58	46
09	00	34	29	59	48
10	38	35	04	60	00
11	32	36	34	61	26
12	00	37	41	62	39
13	42	38	60	63	34
14	39	39	08	64	28
15	38	40	44	65	41
16	40	41	37	66	00
17	11	42	24	67	40
18	34	43	00	68	34
19	37	44	28	69	14
20	09	45	41	70	38
21	41	46	34		
22	42	47	36		
23	43	48	35		
24	11	49	43		
25	49	50	38		

**Discussion**

Several disorders of spermatogenesis result in permanent and irreversible infertility. In these patients, germ cells are either absent or fail to proliferate beyond a particular stage of spermatogenesis. These disorders are associated with chromosomal abnormalities.

Germinal cell aplasia and germinal cell arrest account for about 10% of men with infertility. The semen sample of these men shows azoospermia or severe oligospermia<sup>7</sup>. Azoospermia is defined as absence of sperm in semen. Oligospermia is defined as sperm count less than 20 million/ml.

**Classification of Sperm Count**

Classification of Sperm Count	Sperm Count in Millions/mL
Azoospermia	0
Severe oligospermia	<1
Moderate oligospermia	1-5
Mild oligospermia	5-20
Normal	>20

Azoospermia with a normal semen volume may be caused by obstruction of the epididymis or vas deferens is referred as obstructive azoospermia and problems with spermatogenesis is termed as non-obstructive azoospermia. A doctor can distinguish between obstructive and non-obstructive azoospermia with approximately 90% accuracy by measuring testis size and FSH. Biopsy of the testis is occasionally necessary to determine whether azoospermia is obstructive or non-obstructive.

More than 90% of male factor infertility is characterized by low number of sperm in semen or production of spermatozoa in poor quality<sup>8</sup>.

Carlsen et al<sup>1</sup> (1992) observed that there is a genuine decline in semen quality over the past 50 years. As male fertility is to some extent correlated with sperm count the results may reflect an overall reduction in male fertility.

In a study conducted by Babill stray Pederson<sup>6</sup>(1984) on 195 males with the history of infertility, oligospermia was seen in 7 (3.58%) patients. In a study conducted by Quilter et al<sup>8</sup> (2003), on 103 patients referred for infertility, 40 (38.83%) patients had azoospermia and 47 (45.63%) patients had oligospermia. Rao et al<sup>9</sup> (2004) studied 251 infertile men in which 151 (59.77%) patients were azoospermic.

In the present study azoospermia was found in 8 patients (11.42%) and oligospermia in 8 patients (11.42%). Among the above stated 8 patients with azoospermia, two patients showed karyotype 47,XXY i.e. Klinefelter syndrome, two patients showed karyotype 46,XX, one patient showed mosaic Klinefelter, one showed inversion and one showed isochromosome. Only two patients with azoospermia had normal chromosome complement. Among the 8 patients with oligospermia, one patient showed translocation. This patient was a welder by occupation. The hormonal study of this patient showed raised LH and FSH and reduced testosterone level. One patient with oligospermia was dye worker. One patient with oligospermia had a positive history of varicocele and 2 patients had a positive history of mumps orchitis. One patient was a furnace worker. The other two patients with oligospermia did not have any other significant finding. Thus the present study correlates with the previous study of Babill stray Pederson (1984).

**Conflict of Interest: None**

**Source of Support: Nil**

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