

# A Study of Semen Parameter Contributing Infertility in Vidarbha Region

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## Abstract

**Introduction:** As per WHO 2010 guidelines it states that, after one year of unprotected sexual relation if couple unable to achieve pregnancy can be labelled as infertility. The European societies for human reproduction and embryology (ESHRE) defines infertility as, the failure of pregnancy occur within two year of regular coital exposure. The data reveals in an average 50% of all infertile couple, infertility could be caused by male partner. Infertility affects both partner equally and on an average 10% to 15% of couples (Either male or female or both) in developed country. The aim of this study is to understand abnormal semen parameters of infertile male partner visiting infertility clinic and to study insight of the prevalence of abnormal semen parameters in vidarbha region, also to study cause infertility in male.

**Aim and Objective:** To study the prevalence of male factor contributing infertility with semen parameter in vidarbha region.

**Material and Methodology:** This is been carried out from September 2019 to February 2020. This is retrospective study of patients visited to our infertility clinic Wardha Test Tube Baby Centre, AVBRH, JNMC for infertility reason.

**Observation and Result:** It is observed that, 77 (64.16%) patients were from 31-40 years of age group. Out of total 120 patients, 71(59.17%) partner showed abnormal semen parameter and remaining 49 (40.83%) showed normal seminogram. This indicates that contribution of male pattern infertility was 59.17% in infertile couple who enrolled for the study. Out of 71 patients, 50.70% patients were showed abnormality as oligozoospermia, 19.72% azoospermia, 12.67% asthenozoospermia, 11.26% Cryptozoospermia and 5.63% teratozoospermia.

**Conclusion:** The endocrinologist/androloger's role is primary and critical for full diagnostic evaluation and etiological therapeutic potential as reported in a wide range of pregnancies. We also confirm the importance of research on the semen parameters that leads to understanding between fertile and infertile people.

**Keywords:** Semen, Infertility, ESHRE, ICSI.

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## Introduction

As per WHO 2010 guidelines it states that, after one year of unprotected sexual relation if couple unable to achieve pregnancy can be labelled as infertility. The European societies for human reproduction and embryology (ESHRE) defines infertility as, the failure

of pregnancy occur within two year of regular coital exposure. The data reveals in an average 50% of all infertile couple, infertility could be caused by male partner<sup>1</sup>. Infertility can affect patient by means of big financial losses and with mental stress also, currently it is affecting approximately 4.9 to 7.2 crore couple all over the world. Infertility affects both partner equally and on an average 10% to 15% of couples (Either male or female or both) in developed country<sup>2</sup>. Male factors accounted for infertility are greater than in female<sup>3</sup> Semen analysis is very important tool to diagnose male infertility, it gives long range of information about the status of infertility in male, WHO have given various guidelines of semen analysis. As per WHO 2010 guidelines oligozoospermia, asthenozoospermia, azoospermia, teratozoospermia, and mixed multiple abnormality (eg. oligoasthenoteratozoospermia) are term used for abnormal semen parameters, that can contribute infertility in male. In half of infertile male partner, cause of infertility is abnormal seminogram, approximately in 30% to 40% infertile male, causes of infertility are hidden. When we are unable to correlate Infertility with abnormal semen parameter it can be called as idiopathic infertility, it may occur due to several reasons like as failure of endocrine, ROS (Reactive oxygen species), and genetic defects<sup>4</sup>, also in recent years functional defects in male partner like erectile dysfunction and ejaculatory dysfunction have increased. Infertility in male can also occur due to defects in spermatogenesis and it can partly be attributed to neurogenic factor, genital tumour, germ cell aplasia, obstruction in transport of sperm, varicocele in testes or toxins present in environment<sup>5</sup>. Primary infertility can be observed in 1 of 8 couple as well as secondary infertility can be observed in 1 in 6 couples<sup>[4]</sup>. As infertility is not life threatening disorder it received very less attention than other complex diseases. In an current scenario ICSI (Intra cytoplasmic sperm injection) is the treatment of choice for unknown cause of male infertility<sup>6</sup> also pregnancy rates higher if frozen-thawed embryos are used for transfer<sup>7</sup>. The aim of this study is to understand abnormal semen parameters of infertile male partner visiting infertility clinic and to study insight of the prevalence of abnormal semen parameters and cause of infertility in male at Vidarbha region.

#### **Aims and Objective:**

1. To study the prevalence of male factor contributing infertility in Vidarbha region.
2. To correlate prevalence of male infertility with semen parameter.

3. To identify possible reasons contributing infertility in male.

### **Material and Methodology**

This is been carried out from September 2019 to February 2020. This is retrospective study of patients visited to our infertility clinic Wardha Test Tube Baby Centre, AVBRH, JNMC for infertility reason.

#### **Inclusion Criteria:**

Infertile couple with male factor

Patient with Primary infertility

Patient giving consent for study

#### **Exclusion Criteria:**

Patient with secondary infertility

Patient having infection like HIV, HbsAg etc

Patient having female factor for infertility

Patient not giving consent for study

History obtained from patient specific questionnaire (Demographic, age, Duration of infertility, BMI, frequency of sexual activity data obtained) format and medical history of patient was obtained from their previous medical records. All the recruited couples had regular and unprotected sexual activity from more than one year still they did not achieved desired pregnancy. Semen analysis of all patients was performed at Wardha Test Tube Baby Centre. Semen analysis carried out after minimum 3 days of abstinence period. Semen analysis was done according to the WHO 2010 laboratory manual<sup>8</sup>. The data collection were made according to their age, duration of infertility, BMI, semen quality and sperm morphology as oligozoospermia, asthenozoospermia, azoospermia, teratozoospermia, and mixed multiple abnormalities (eg. oligoasthenoteratozoospermia).

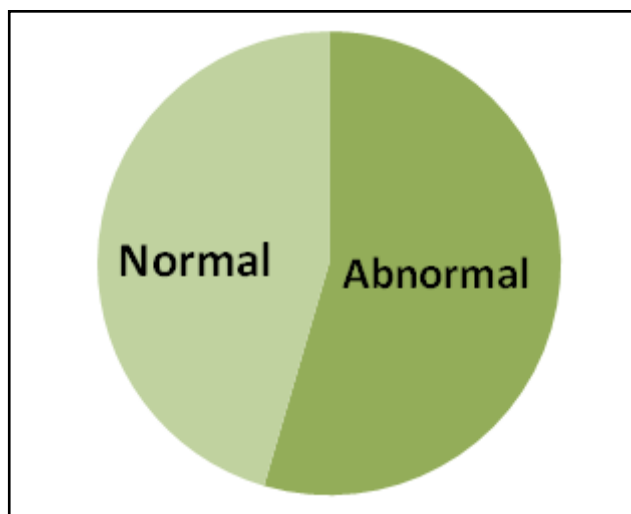
### **Observation and Result**

It is observed that, 77 (64.16%) patients were from 31-40 years of age group. Out of total 120 patients, 71(59.17%) partner showed abnormal semen parameter and remaining 49 (40.83%) showed normal seminogram. (Table 1 and Figure. 1) This indicates that contribution of male pattern infertility was 59.17% in infertile couple who enrolled for the study. Out of 71 patients, 50.70% patients were showed abnormality as oligozoospermia,

19.72% azoospermia, 12.67% asthenozoospermia, 11.26% Cryptozoospermia and 5.63% teratozoospermia (Table 2 and Figure.2). In our study maximum patients were from 30-40 years of age group. The infertility duration was lesser than or equal to 5yrs in 47% patients, this shows that maximum couple came for treatment within 5 years of infertility. It is also observed that patient with higher BMI has lower number of sperm count, most of oligozoospermia patient were suffering from overweight or obesity problem.

**Table 1: Patient with Normal and Abnormal semen parameter**

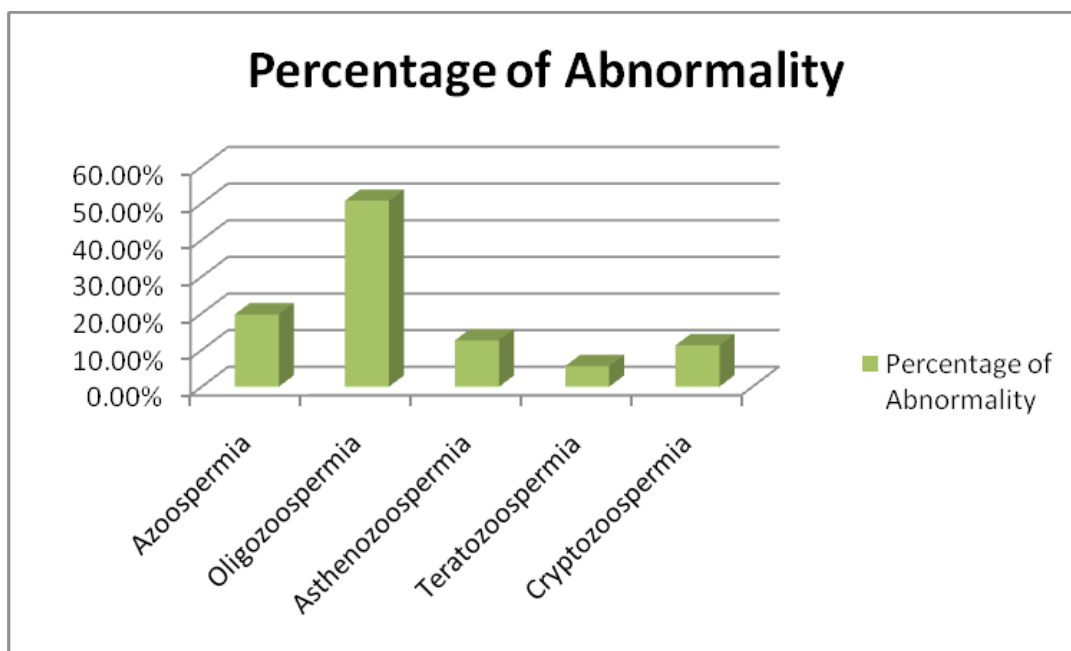
Sr No	Quality of semen	Number of patient
1	Abnormal Semen	71 (59.17%)
2	Normal semen	49 (40.83%)



**Figure. 1 Shows Normal and Abnormal semen parameter**

**Table 2: Proportion of abnormalities present in semen**

Sr.No.	Abnormality	Number of patient	Percentage
1	Azoospermia	14	19.72%
2	Oligozoospermia	36	50.70%
3	Asthenozoospermia	09	12.67%
4	Teratozoospermia	04	5.63%
5	Cryptozoospermia	08	11.26%
<b>Total</b>		<b>71</b>	



**Figure. 2 Shows abnormalities present in semen**

## Discussion

There were very few literatures present on male infertility in vidarbha region. Similar study done by Khan et al<sup>9</sup> in Pakistan, Joshi et al<sup>10</sup> in Bangalore, Jain et al<sup>11</sup>, Jajoo et al<sup>12</sup> and by P. R. Pant<sup>13</sup> in Nepal, they also found oligozoospermia to be the most common cause of infertility in male. In african country study done in a nigerian by Ugwuja et al<sup>14</sup>, they found motility defects were most common. In our study we found only in 12.67% cases. Literature shows the prevalence rate in azoospermic man was 10 to 20% or 1% man in the general population<sup>15</sup> that is almost akin with our observation. Seda Karabulut et al<sup>15</sup> revealed that the incidence of cryptozoospermia amongs turkey population was 8.73% that is close with the our finding. Kruger et al<sup>16</sup> study revealed that approximately 4 % of infertile men have isolated teratozoospermia as indicated by Tygerberg's strict criteria (< 5 percent of normal forms) this is also nearly akin to our observation. However, this is now documented that even though sperm concentration or motility is good, a morphological defect may be the dominant factor reflecting the actual sperm fertilization capacity<sup>17</sup>. Results variability may be seen due to local ethnic differences, environmental variations, dietary disparity, social life and evolving lifestyle factors. Currently very few therapies are available to treat male infertility, proper diagnosis of idiopathic cause and treatment to reverse the disorder would be the game changer role to promote male partner fertility<sup>18</sup>.

**Limitation:** The limitation of this study is that, we took only patient age and BMI into consideration, there may be many other factors like occupation, and drugs, etc. Hence, we can work in many directions to prevent these conditions that can affect fertility in males.

## Conclusion

The endocrinologist/androloger's and dietician role is primary and critical for full diagnostic evaluation and etiological therapeutic potential as reported in a wide range of pregnancies. We also confirm the importance of research on the semen parameters that leads to understanding between fertile and infertile people.

**Ethical Clearance:** Taken from institutional ethics committee.

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**Conflict of Interest:** Nil.

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