

**CASE REPORT****A Case Report of Male infertility and Gynecomastia in High Altitude Area: Clinical Evaluation and Management**SYED INTESAR BURNI<sup>1</sup>, SAMEERA ALI RIZVI<sup>2</sup>, FAREENA KHALIL<sup>3</sup>, MEHWISH ASAD<sup>4</sup>, TAZEEN SAEED ALI<sup>5</sup><sup>1</sup>Director NRIFC, Karachi<sup>2</sup>Assistant Professor Department of Public Health, Faculty of Life Sciences, SZABIST, Karachi<sup>3</sup>dr.fareenakhalilzaheer@gmail.com<sup>4</sup>AKU SONAM intern, Karachi<sup>5</sup>Professor, Assistant Dean, Research and Graduate Programs

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Correspondence to Dr. Sameer Ali Rizvi, Email: [dr.sameera.rizvi@szabist.edu.pk](mailto:dr.sameera.rizvi@szabist.edu.pk) & Dr. Tazeen Seed Ali email: [tazeen.ali@aku.edu](mailto:tazeen.ali@aku.edu)**SUMMARY**

Gynecomastia is a common abnormality of breast tissue among men. It is the benign enlargement of male breast glandular tissue.

In this report a narrative approach was followed for the qualitative inquiry of three men from the high altitude areas of Pakistan. They presented with gynecomastia and infertility. These men were approached for clinical examination, lab investigations, and further management. The semen findings of these patients showed oligospermia, azoospermia or necrospermia. Serum Prolactin was found to be high and they were overweight with increased breast development. The Serum Prolactin, FSH, LH levels, and Testosterone levels were measured in these patients with infertility. The laboratory investigations of our patients showed high prolactin and estrogen levels. All these men were reported stress due to erectile dysfunction and infertility. The reasons of male infertility in the high-altitude areas of Pakistan need to be explored further.

**Keywords:** Male infertility, gynecomastia, high altitude

**INTRODUCTION**

Gynecomastia is a condition in which the glandular tissue in the breasts becomes enlarged in boys or men. It is usually the result of a hormonal imbalance and may occur during adolescence, or mid to late life. Gynecomastia must be distinguished from breast enlargement due to fat deposits seen in overweight men. The condition often goes away on its own, but treatments are available for severe or persistent cases. When gynecomastia is the result of an underlying health problem, treatment of that problem usually improves the gynecomastia as well.

Globally the prevalence of Gynaecomastia has been found to be 30–50% among healthy men<sup>1</sup>. Although its causes are unknown gynecomastia increases gradually with age, obesity, medications.

Men with Gynecomastia often experience anxiety and psychosocial discomfort. Patients with severe gynecomastia may be at a higher risk of infertility. According to statistics, 52% of 40 - 70-year-old men suffer from varying degrees of sexual dysfunction with or without gynecomastia<sup>2</sup>.

A study conducted in Italy to study the relationship between gynecomastia and sexual dysfunction showed a 3.1% prevalence of gynecomastia among men attending the Outpatient Clinic for sexual dysfunction<sup>3</sup>. Another study reported a 48-year-old obese man progressively decreasing energy and gradual decline in both libido and erectile function<sup>4</sup>. Overweight and obesity have been associated with a higher prevalence of low ejaculate volume, sperm concentration, and total sperm count<sup>5</sup>.

The management of gynecomastia includes reassurance, surgery and medication. It is managed better by hormonal and surgical solutions along with proper nutrition and exercises<sup>6</sup>. Literature supports that poor spermatogenesis is associated with high serum Prolactin, FSH, LH levels, and **low** serum testosterone levels in patients with male infertility. Moreover, elevated serum Prolactin levels and decreased serum Testosterone levels are found to be more common among infertile males<sup>7</sup>.

**METHODS**

We followed the narrative approach for the qualitative inquiry. Three men were interviewed, examined, and evaluated by an expert of endocrinology and male infertility. These cases were

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selected from a tertiary care hospital of Karachi Pakistan. These males presented in the clinic with infertility. On examination they had gynecomastia and their laboratory investigations showed oligospermia, azoospermia, and necrospermia. In all these patients with infertility, the Serum Prolactin was found to be high and they were overweight. All of them were residents of high-altitude areas of the Baluchistan Province of Pakistan. The detailed history was taken about years of marriage and frequency coitus.

The information of the three patients of infertility was taken according to their presenting complaints, clinical examination, lab investigation and management. Their partner information was also asked along with their socioeconomic and psychosocial status.

**RESULTS**

**First case:** He was a 37 years old man, from low socioeconomic status. He by profession was a fruit seller, belonged to Quetta, a high-altitude area of Pakistan. He was married for 10 years with the complaint of erectile dysfunction and no feeling of sexual attraction towards his wife. On clinical examination, he presented with obesity and his height was 5 feet 5 inches. He had a female-like body with breast enlargement along with infertility, gave a history of coitus during menses. Literature has shown that coitus during menstruation can affect negatively the man's libido and make him temporarily impotent because of the presence and smell of menstrual material<sup>8</sup>. The laboratory investigations of this patient showed high prolactin and estrogen levels. His testosterone was 5.188 (ng/ml). Semen Analysis showed Azoospermia. After treatment semen analysis showed a reduced quantity of sperms that were not enough for fertilization only possibility is IVF. Since he had azoospermia therefore he was given pharmacological therapy and IVF was suggested. He was treated for hyperprolactinemia for 2 months, with which his prolactin level started decreasing and his impotency improved. He was also advised of good nutrition.

**Second case:** He was 28 years old, a fruit seller from Quetta, Pakistan. He was married for 7 years. He presented with primary infertility. On examination, he was overweight with 5 feet 6 inches in height. He had gynecomastia, female-like body fat distribution and erectile dysfunction for 2 years. His testis was in a normal position. Since he lived at a distant place for this reason he could not complete his treatment. The laboratory report of the second case showed FSH 5.37 (mIU/ml) and Prolactin 509(ng/ml) (hyperprolactinemia) and Testosterone 2.090 (ng/ml). This patient was non-compliant with his treatment. He was also found to be a

smoker. He had a history of Typhoid Fever due to which he developed impotency. Literature review shows a case of a typhoid fever patient with azoospermia however after the fever ceased, the spermatogenesis recovered and sperm production functioned normally<sup>9</sup>. He gave a history of "alternative medicine treatment" for his impotency. A systematic review of placebo-controlled clinical trials that investigated the use of alternative medicines and herbal remedies in the management of erectile dysfunction showed improvement in impotency<sup>10</sup>.

**Third case:** He was a 27 years old man from an affluent family of Baluchistan and was extremely obese with a weight more than 200kg and height of 6 feet 2 inches. He was married for 8 years. During examination only his scrotum was found palpable, testis and penis were hard to palpate due to obesity. He had sought treatment for his impotency from all over the world but there was no success. Later he has advised weight reduction. Studies have shown a positive relationship between high BMI and male impotency<sup>11</sup>. On Lab investigation, his testosterone was found to be normal. This patient was instructed to lose weight to make treatment effective, overall multivitamins and nutritional medicine were also advised. After two months of treatment he started losing weight, his testis development began and cells started producing 0.5ml semen with oligospermia, a successful artificial fertilization in vitro (IVF) was carried out. Research also shows that IVF now accounts for 1.6% and 4.5% of all live births in the United States and Europe, respectively however it is not possible in men with aspermia<sup>12</sup>.

In all our three cases the wives were normal with regular menstrual history and hormone profiles. All these men were reported stress due to erectile dysfunction and infertility. Studies have shown that psychological stress has been perceived clinically as a potential risk factor for male infertility, although to what extent it affects human male fertility is difficult to study and evaluate and at the same time clinical studies demonstrate an inverse relationship between psychological stress and semen parameters<sup>13</sup>.

A research study conducted in a high altitude area reported a state of oligospermia among mountaineers; this state has been found to be reversible<sup>14</sup>. Another study show that long exposure to high altitude and hypoxia can seriously affect men's reproductive health by reducing the sperm concentration, which decreases with the increase of altitude. High altitude and hypoxia are strongly associated with spermatogenic reduction, sperm DNA damage, sperm apoptosis, and decreased level of sex hormones<sup>15</sup>. Furthermore fertility related stress has been found to be associated with a poorer treatment outcome both among men and women<sup>16</sup>.

**Conclusion** The reasons of male infertility in the high altitude areas of Pakistan need to be explored further especially because infertility is a subject of debate and females remain a target of society but advancing knowledge shows that males are also an

equal contributor to this problem<sup>17</sup>. Gynecomastia is a treatable condition among males therefore if such case is provided with the optimal treatment the number of infertility patients can be reduced.

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