

CASE REPORT**Secondary Oligo-Asthenoteratospermia After Sleeve Gastrectomy: A Case Report**

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ABSTRACT

Sleeve gastrectomy (SG) is a relatively recent and effective weight-loss treatment. Because the number of bariatric surgical operations is increasing, surgeons should be aware of the issues related with SG. In the absence of an identifiable etiology, oligo-asthenoteratospermia in a patient with proven fertility is unusual. Here we describe a case of severe worsening of semen parameters after SG.

Key words: Key words: Sleeve gastrectomy, Bariatric surgery, Semen analysis

INTRODUCTION

Saudi Arabia has an overall obesity prevalence of 35.5%¹. Bariatric surgery is becoming increasingly popular in Saudi Arabia. However, there is a scarcity of published data on its clinical outcomes. Furthermore, there is a dearth of research on the occurrence of unexpected diseases or incidental discoveries, associated with this procedure particularly incidental findings of abnormal semen parameters. As a result, it's critical to understand and address this rare complication.

It has been suggested that this rare complication may arise as a result of the negative impact of dietary deficiencies and the release of toxic substances².

Patients should be informed about the potential reproductive implications of bariatric surgery, as well as the option of sperm cryopreservation, before the procedure is considered.

Most of the studies present in the literature on bariatric surgery, with available follow-up data, failed to include semen parameters in their results but there is a growing body of research revealing that bariatric surgery can have negative impact on sperm parameters.

The evidence on the link between bariatric surgery and postoperative sperm parameters is conflicting. Some studies found no link, whereas others reported a substantial reduction in total sperm count at postoperative follow-up, among males who had gastric bypass or sleeve gastrectomy. Similarly, there are a number of case studies reported in the literature.

Here we report the first case of secondary oligoasthenoteratospermia in Saudi Arabia following sleeve gastrectomy, to the best of our knowledge.

CASE PRESENTATION

Following unsuccessful attempts to conceive, a 62-year-old man presented with secondary infertility. He had a medical history of severe obesity and sleeve gastrectomy (SG) a year prior to his first clinic appointment. The patient fathered two children from his previous marriage. Both the children were conceived naturally. The patient had recently been married for the second time with inability to conceive.

His physical examination was unremarkable. Both testes were located in a normal position, with normal consistency and no palpable mass. The spermatic cord structures were normal. There were no other genital abnormalities discovered. No varicoceles were noted on either side. There was no history of erectile dysfunction.

A semen analysis revealed oligoasthenoteratospermia, with an increase in the number of immature germ cells (Table 1) and normal accessory gland secretory function. The amounts of gonadotrophins and testosterone in the blood were normal. Other laboratory results, such as serum calcium, were within normal limits.

The history and examination of the partner were unremarkable.

Variable	Patient Result	Normal value
Appearance :	Greyish white	
Liquefaction time :	30 minutes	< 30 minutes
Volume :	1.5 ml	> 2 ml
pH	Alkaline	7.2 - 8
Motility (100 spermatozoa):-	0%	(a > 25% within 1 hr)
(a) rapid progressive:	10%	(a + b > 50% within 1 hr)
(b) slow progressive	90%	
(c) non progressive:		
(d) immotile:		
Sperm Concentration (10 ⁶ /ml):	0.1 mil/ml	(> 20 X 10 ⁶ /ml)
Morphology (%):-		
- Normal:	20%	(> 30% normal forms)
- Head defects:	70%	
- Neck or mid-piece defect:	-	-
- Tail defects:	-	-
- Cytoplasmic droplets:	-	-

Extended follow-up of the patient over the span of two years revealed similar derangement of semen parameters

DISCUSSION

Bariatric surgery alleviates a variety of obesity-related comorbidities, and extends life expectancy³, however there has been limited research regarding its effect on fertility and sexual function, and the results are mixed. Two studies have found that bariatric surgery helps to rectify hormone imbalances and improves sexual quality of life. A 2019 meta-analysis, found no significant change in postoperative semen parameters². In contrast, a multi-institutional prospective cohort called BARIASPERM found a substantial reduction in total sperm count after 12 months of postoperative follow-up among males who had gastric bypass or sleeve gastrectomy⁴. Numerous case reports and case series have found that rapid weight loss has a negative impact on sperm function and fertility, possibly as a result of nutrient malabsorption that happens as a result of such operations (Buchwald et al, 2004⁵, Di Frega et al, 2005⁶, Sermondade et al, 2012²). Di Frega et al, 2005 revealed the occurrence of secondary infertility in six patients who had previously fathered children and underwent Roux-en-Y gastric bypass. All of the cases had azoospermia due to full spermatogenic arrest, implying that spermatogenic dysfunction was caused by nutritional deficiency or a toxic assault rather than hormonal malfunction.⁶ In another case series, Sermondade et al, reported three patients in whom semen parameters had deteriorated significantly three months following bariatric surgery². Gomez G similarly reported a case of azoospermia after sleeve gastrectomy with extended clinical follow up⁷.

Our patient is a 62-year-old male. Numerous studies have indicated that, getting older is linked to a decrease in sperm volume and sperm motility. Kumar N et al found in their study that as people age, degenerative changes in the germinal epithelium develop, resulting in a decrease in the number and functions of Leydig cells, which affects spermatogenesis by lowering testosterone levels. All of these changes begin around the age of 30 and occur gradually at a rate of up to 3.3% per year of age and even then they are not significant. The authors further highlighted in their study that men in the 50-60- year age group had above normal sperm count and morphology⁸. Sasano and Ichijo discovered in their study that 90 percent of seminiferous tubules in males between 20 and 30 years of age had spermatids, while 50 percent of seminiferous tubules in men between 40 and 50 years of age contained

spermatids. Only 10% of men over the age of 80 have spermatids in their seminiferous tubules⁹. However, the changes observed in semen parameters in our patient were abrupt and only occurred after the bariatric surgery. No other identifiable etiology other than the bariatric surgery could be observed in our patient with previously established fertility.

Finally, there is a potential relationship between weight-loss surgery and infertility. To improve our understanding of the pathophysiologic causes of infertility in obese males, more in-depth research into this relationship is still needed.

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