

Celecoxib/golimumab/sulfasalazine

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Sperm head and spermatogenesis abnormalities: case report

A man in his late 30s [*exact age at onset not stated*] developed elongated sperm head during treatment with golimumab and spermatogenesis abnormalities during treatment with celecoxib and sulfasalazine.

The man, who had ankylosing spondylitis (AS) first came to the Unit for Human Reproduction 6 years ago, and had been receiving celecoxib and sulfasalazine [sulphasalazine] [*dosages not stated; not all routes stated*]. He presented with seeking fertility treatment and primary infertility. A detailed semen analysis was performed. Sperm cryopreservation was made and cryovials of sperm were stored in liquid nitrogen. The couple had previous unsuccessful intra-uterine inseminations and one unsuccessful in vitro fertilisation cycle at a different centre. During detailed investigation, a female factor of infertility was identified and hysteroscopic removal of an endometrial polyp enabled the subsequent establishment of a pregnancy. The after the couple had two healthy child. Following completed his family, the man consented his frozen samples to be donated for research and also gave a fresh sample before and after unspecified mRNA COVID-19 during on going treatment with golimumab for analysis of all parameters. He had been receiving SC golimumab once a month for past 4 years. The frozen samples were analysed for all parameters. A 3.5mL of fresh semen collected during the patient's current therapy with golimumab after 3 doses of unspecified mRNA vaccination for COVID-19 and a total of 3.2mL of fresh semen collected during his therapy with golimumab before mRNA vaccination for COVID-19, which were analysed for standard semen analysis. By light microscopy, sperm characteristic were examined and by flow cytometry, DNA fragmentation was analysed. Transmission electron microscopy (TEM) was performed, which revealed a high incidence of abnormalities on the sperm head (elongated forms) in the fresh samples under therapy with golimumab, which was not observed in frozen samples under therapy with sulfasalazine and celecoxib. Flow cytometry showed sperm DNA fragmentation were within the normal limits. Additionally, frozen sample under therapy with celecoxib and sulfasalazine showed a neutrophil, in a degenerating spermatid, in a longitudinal section of a sperm head with a rounder shape and without a pointed acrosome and cross sections of tails with normal outer dense fibers and axonemal pattern and abnormal patterns, in a longitudinal section of a normal sperm head and an abnormally shaped slightly bent sperm head with vacuoles. Based on the frozen sample analysis, sulfasalazine showed deleterious effects on spermatogenesis/spermiogenesis and celecoxib showed effects on testicular function leading to spermatogenesis abnormalities. The elongated sperm head was considered secondary to golimumab and spermatogenesis abnormalities were considered secondary to celecoxib and sulfasalazine [*duration of treatments to reactions onsets not stated; not all outcomes stated*].

The man's treatment with sulfasalazine was discontinued. Three months of discontinuation, resulted in reversal of abnormalities of spermatogenesis.

Chatzimeletiou K, et al. Effects of Different Drug Therapies and COVID-19 mRNA Vaccination on Semen Quality in a Man with Ankylosing Spondylitis: A Case Report. *Medicina (Kaunas, Lithuania)* 58: No. 2, 24 Jan 2022. Available from: URL: <http://doi.org/10.3390/medicina58020173> 803658907