NON-LIQUEFACTION OF THE SEMEN

An anomaly of semen quality when the ejaculate cannot liquefy in 60 minutes after ejaculation.

♀ Symptom  ♂ Male

About Non-liquefaction of the semen

Non-liquefaction of semen is an abnormally prolonged time required for the semen to liquefy. The liquefaction is the process when the gel formed by proteins from the seminal vesicles (Pic. 1) is broken up and the semen becomes more liquid. Normal semen coagulates (forms clots) a few seconds after ejaculation, then undergoes liquefaction within 30 minutes. Coagulation is due to formation of a fibrin clot by the action of the prostatic clotting enzyme from the seminal vesicles. Liquefaction is caused by the action of fibrinolytic enzymes of prostatic origin. In the NICE guidelines (National Institute for Health and Care Excellence guidelines), a liquefaction time within 60 minutes is regarded as within normal ranges.

Liquefaction is defective or absent in the semen of males with lesions or absence of the vasa deferentia (ducts that transport the semen from the testis) and seminal vesicles. Therefore, prostatitis (inflammation of the prostate) and spermatocystitis (inflammation of the seminal vesicles) are regarded as possible causes of semen non-liquefaction. These glands (Pic. 2) secrete substances that make up the majority of the seminal fluid and are also responsible for the changes of viscosity of semen in the course of time. Inflammation of these glands and reduced secretory function could therefore lead to lower semen quality and delayed or absent liquefaction. Other possible causes include deficiencies of trace elements, such as magnesium or zinc.

Non-liquefaction of semen may be associated with several conditions, including:

**Prostatitis**

The term prostatitis refers, in its strictest sense, to histological (microscopic) inflammation of the tissue of the prostate gland. Like all forms of inflammation, it can be associated with an appropriate response of the body to an infection, but it also occurs in the absence of infection. Prostatitis is classified into acute, chronic, asymptomatic inflammatory prostatitis, and chronic pelvic pain syndrome.

**Spermatocystitis**

Seminal vesiculitis (also known as spermatocystitis) is an inflammation of the seminal vesicles, most often caused by bacterial infection. Symptoms of seminal vesiculitis can include vague back or lower abdominal pain; penile, scrotal, or perineal pain; painful ejaculation; hematospermia (blood in the semen) and impotence. It is usually treated by administration of antibiotics. In intractable cases, in case of patient discomfort, transurethral seminal vesiculoscopy (endoscopic examination of the seminal vesicles via the urethra) may be considered.

**Prognosis**

Non-liquefaction of semen has a detrimental effect on male fertility, as it can lead to asthenozoospermia, reduced sperm motility. Azoospermia in turn decreases the sperm quality and is therefore one of the major causes of infertility or reduced fertility in men.

If sperm are capable of reaching the cervical mucus, troubles of semen liquefaction are not clinically relevant.
Sources

“Seminal vesicle [https://en.wikipedia.org/wiki/Seminal_vesicle]” — sourced from Wikipedia licensed under CC BY-SA 3.0

“Asthenozoospermia [https://en.wikipedia.org/wiki/Asthenozoospermia]” — sourced from Wikipedia licensed under CC BY-SA 3.0

“Semen analysis [https://en.wikipedia.org/wiki/Semen_analysis]” — sourced from Wikipedia licensed under CC BY-SA 3.0

“Prostatitis [https://fertilitypedia.org/edu/diagnoses/prostatitis]” — sourced from Fertilitypedia licensed under CC BY-SA 4.0

“Pregnancy & Prenatal Testing; Semen Analysis [http://ucsdlabmed.wikidot.com/chapter-14-pregnancy-prenatal-analysis#toc7]” — sourced from UCSD Lab Medicine licensed under CC BY-SA 3.0

“Studies on Liquefaction Time and Proteins Involved in the Improvement of Seminal Characteristics in Dromedary Camels (Camelus dromedarius) [https://www.hindawi.com/journals/scientifica/2016/4659358/]” — by Mal et al. licensed under CC BY 4.0

“Relationship between Semenogelins bound to human sperm and other semen parameters and pregnancy outcomes [https://bacandrology.biomedcentral.com/track/pdf/10.1186/s12610-017-0059-6?site=bacandrology.biomedcentral.com]” — by Yamasak et al. licensed under CC BY 4.0

“Male anatomy en [https://commons.wikimedia.org/wiki/File:Male_anatomy_en.svg]” — by Tsaigtai licensed under CC BY-SA 3.0

“Accessory male sex glands [https://commons.wikimedia.org/wiki/File:Gray1160.png]” — by Henry Vandyke Carter licensed under CC0 1.0