

“Toxic Shock Syndrome and Tampons” are they Linked??

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Received: March 27, 2019; Published: May 02, 2019



Figure 1

Abstract

Tampons are products used to absorb the menstrual flow by insertion into the vagina during menstruation. They were widely used before a period of years but its used has been reduced after the shocking news that they have the ability to cause toxic shock syndrome. These articles elaborates how tampons cause toxic shock syndrome and about its consequences.

Keywords: Toxic Shock Syndrome (TSS); Tampons

Introduction

Toxic Shock Syndrome (TSS) is a rare toxin mediated life-threatening disorder that is usually caused by infection with either *Staphylococcus aureus* or *Staphylococcus pyogenes* [1].

Toxic shock syndrome (TSS) was first recognized in 1980 when it was found to be related to menstruation and tampon use [2].

Epidemiology

3 per 100, 000 population per year (July 2013) [2].

Women using highly absorbent tampons are at higher risk of developing TSS [3].

Over the past two decades, the number of cases of menstrual TSS has steadily declined due to the withdrawal of highly absorbent tampons from the market.



Figure 2

How does a tampon cause toxic shock syndrome??



Figure 3

A tampon saturated with blood provides a supportive place for the bacteria to grow [4], especially when it's left in place for a longer time (more than 30 hours). Or in case, if the sponge or pieces of sponge remain in the vagina or when the tampon fibers scratch the vagina, creating an opening for the bacteria to enter into the bloodstream.

How can one identify the presence of toxic shock syndrome??

Staphylococcal toxic shock syndrome may present with [2,5,6]:

- Body temperature > 38.9°C/102.02°F.
- Systolic blood pressure < 90 mm Hg.
- Diffuse macular erythroderma.
- Desquamation (1 - 2 weeks after the onset).
- Involvement of three or more organ systems
 - Gastrointestinal system- diarrhea, vomiting.
 - Muscular system- severe myalgia.
 - Mucous membrane hyperemia- vaginal, oral, conjunctival.
 - Kidney failure- increased serum creatinine levels.
 - Liver inflammation- abnormal LFT.
 - Low platelet count < 100,000/mm³.
 - Central nervous system involvement.
- Negative results of blood, throat, CSF cultures for other bacteria except *Staphylococcus aureus*.



Figure 4



Figure 5

How long does it take for the symptoms to appear??

Symptoms usually occur about two days after infection with *Staphylococcus aureus*.

How can the diagnosis be confirmed??

When all of the six criteria of signs and symptoms are present, the diagnosis of TSS is confirmed. The diagnosis is probable when only five of the six criteria are present [5].

How can TSS be treated??

Patients with TSS should be admitted in an intensive care unit and should receive aggressive intravenous fluid hydration with crystalloids [7]. Any source of bacteria (tampons) should be removed immediately. Broad spectrum antibiotics have to be started. Once the organism is identified, the antibiotics can be adjusted accordingly. Symptomatic management is necessary. Intravenous immunoglobulin can be administered [8].



Figure 6

What can be the complications is left untreated??

When a TSS is left untreated, it can lead to liver failure, kidney failure, heart failure and finally shock [9].

Can TSS cause death??

Rarely, TSS can cause death is not treated early and promptly.

How can we prevent the spread of TSS??

- Change tampons every 4 - 8 hours according to the manufacturer’s guidelines.
- Wear a low absorbent tampon.
- Wash hands frequently.
- Do not wear a tampon if there is a previous history of TSS.

World’s first vaccine against TSS

Researchers have developed the world’s first vaccine against TSS and it has been successfully tested in 46 young men and women in the Phase I trial. A phase II trial have been started recently in order to check the results of the initial trial [10].

Conclusion

Toxic shock syndrome is a rare illness. Even though it is fatal, if recognized earlier and treated promptly it is usually curable. Researchers investigating the causes of TSS have ruled out feminine deodorant sprays and douches, underwear and other clothing.

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Volume 8 Issue 5 May 2019

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