REVIEW ARTICLE

TOOTHBRUSHES IN BATHROOM- CLEAN BEFORE YOU CLEAN

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ABSTRACT:
Toothbrushes are necessary for daily oral hygiene, but residues remaining on their bristles may precipitate the growth of several microorganisms. Over 700 bacterial species, as well as fungi, viruses, and transient microorganisms, are present in the oral cavity that may or may not cause various diseases
Studies have shown that an average toothbrush can contain 10 million bacteria or more including E. coli and Staphylococcus. Bacteria and viruses falling from toilet spray remain airborne long enough to settle on surfaces throughout the bathroom. So, tooth brushes can be a viable source of infection and can also be responsible for cross contamination. Present review article is an attempt to to create awareness and discuss how small practices like placing your brush away from flush can save you from harmful germs and hence from several infections.
Key words: Bathroom, oral hygiene, oral Infections, tooth brushes.

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INTRODUCTION:

The increased awareness of the need for good dental health and the emphasis on preventive procedures by dentists and dental educators have made the role of a tooth brush increasingly important.[1]

Tooth brushes are most common mode to maintain the oral hygiene. There is evidence that toothbrushes in regular use can become heavily contaminated with micro-organisms. Depending upon storage conditions, the toothbrush can, therefore, serve as a reservoir for their introduction of potential pathogens, such as mutans streptococci.' Micro-organisms from storage environments can also be introduced; these include enteric bacteria dispersed via aerosols from toilet flushing or from contaminated fingers and skin.[2]

Germs attack us in the places where our guard is down and we are most vulnerable. We live in a germ infested world, however our home is one place where we feel secure and in control. “Home” is where germs attack us and bathroom can be the frontrunner in providing a safe and family environment for these germs.[3]

Glass and co-workers suggested that contaminated tooth brushes may play a role in both systemic and localized diseases.[4]

In this context, Sconyers et al.[5] found bacteraemia in five of 30 periodontal patients four minutes after tooth brushing, but failed to detect circulating bacteria in any of the50 clinically-healthy subjects examined.' Silver et al.[6] detected bacteraemia in threeof36 clinically-healthy patients but they did not take pre-brushing control blood samples.

Purpose of this article is not to scare however to create awareness and discuss how small practices like placing your brush away from flush can save you from harmful germs.

CAN BACTERIA FROM YOUR TOILET REALLY REACH YOUR TOOTHBRUSH?

A study at American society for microbiology says that 60% of shared bathroom toothbrushes contain fecal matter. More worrisome is the fact that 80% probability that fecal contamination is from other people. If someone still doesn’t feel to change it

then probably the next line would help. It's not just gross and disgusting, it may contain all sorts of parasites and bacteria. An English study found that diarrhea-causing bacteria from a lidless flush flew as high as 10 inches above the toilet.[7,8]

STORAGE OF TOOTHBRUSHES TO AVOID GERM AND BACTERIA BUILDUP

Obviously we need to place the toothbrushes away from the flush then. But what distance is safe distance ? How much can fecal matter travel during a flush and what can we do to minimize the risk ? At first thought at least four to five feet seems safe. After all how much poo can travel, right ? wrong. Studies have proved that when you flush your toilet, the water droplets travel through the air and can travel several feet. Thanks to "aerosol effect", these tiny droplets can travel far outside the toilet. These droplets may contain millions of bacteria including E. Coli. Also an unbrushed mouth can be compared to a dirty bathroom floor having hundreds of bacteria at any given time. It's better to have a hard barrier between your flush and your brush. One should always flush with the lid down. That acts as first barrier. Second place your brush away from bathroom.

The American Dental Association recommends that you not store your toothbrush in a closed container or routinely cover your toothbrush, as a damp environment is more conducive to the growth of microorganisms. Also, storing toothbrushes in an upright position and allowing them to air dry until the next use is recommended, if possible. If more than one brush is stored in an area, keeping the toothbrushes separate can aid in preventing cross-contamination."

Toothbrushes are not recommended to be stored in an airtight containers. The toothbrush can't dry out between brushing, which encourages mold growth. Also, if you store all the family toothbrushes together in one container, the bacteria can spread from one to the other if the heads are touching. That's an especially bad idea if one person is sick.

Along the same lines, it's possible for germs to be transmitted from one brush to another by sharing toothpaste.[6-10]

BEST PRACTICES TO BE FOLLOWED [8-10]:

Now we are sufficiently aware so we can keep in mind few best practices to keep the brush clean.

1. Replace your brush once every 3-4 months or if the bristles do not feel the way they used to when it was new.
2. Never ever share your brushes, doesn't matter even if you are sharing even with your twin. One can never keep the brush 100% bacteria free so never share.
3. Clean your bristles - best by some antibacterial soap or hydrogen peroxide.
4. Close the flush lid- Flush your toilet with lid down.

HOW OFTEN SHOULD YOUR TOOTHBRUSH BE REPLACED?

Toothbrushes should be replaced at least every three to four months or when bristles become frayed and worn, whichever comes first."

There are four other steps Geisinger recommends be followed to help achieve a higher quality of oral health and avoid or limit some of the causes of bacteria toothbrush buildup.

Use antimicrobial mouth rinse prior to brushing. This can decrease the bacterial load in your mouth considerably and may reduce the number of microorganisms that end up on the toothbrush after brushing.

Engage in routine dental care. Routine dental care, including regular dental cleanings, can reduce the overall bacterial load in your mouth, and the types of bacteria present, and can therefore reduce bacteria on your toothbrush. It is especially important for those with gum disease, as the oral bacteria present in their mouths can enter the bloodstream as they perform everyday activities, including eating, chewing gum and toothbrushing.

Wash your hands. Hand-washing after using the restroom and prior to using your toothbrush can reduce the likelihood of fecal-oral contamination.

Do not share toothbrushes. This seems like a no-brainer, but a large proportion of spouses admit to sharing toothbrushes. That means bacteria on those toothbrushes are being shared, including the ones that cause dental decay and periodontal disease — the two major dental diseases in adults.[8-10]

MYTH[6,7]

1. Cover would help - No, it's useless. cover provides comfortable environment for the bacteria to grow. Air flow would help
2. Replace every 3-4 months - wait, what ? "Just now you said in the best practices that we should replace once every 3-4 months." Well yes, but

that's applicable to healthy people. Sick people should replace it as soon as they get better.

TOP 10 SPOTS FOR BACTERIA:

1. Toilet bowl: 3.2 million bacteria/square inch
2. Kitchen drain: 567,845 bacteria/square inch
3. Sponge or counter-wiping cloth: 134,630 bacteria/square inch
4. Bathtub, near drain: 119,468 bacteria/square inch
5. Kitchen sink, near drain: 17,964 bacteria/square inch
6. Kitchen faucet handle: 13,227 bacteria/square inch
7. Bathroom faucet handle: 6,267 bacteria/square inch
8. Bathroom sink, near drain: 2,733 bacteria/square inch
9. Pet food dish, inside rim: 2,110 bacteria/square inch
10. Toilet floor, in front of toilet: 764 bacteria/square inch

If you see the toilet bowl is at number one and brush near your toilet would contain bacteria is no rocket science.

Studies claim that there is microbial growth on 90% of the used toothbrushes. *Staphylococcus* species were the most common species in the samples, with 30% of the toothbrushes (n=20) presenting some growth of this organism. Twenty percent of the samples showed growth of Lactobacilli sp. *Streptococcus* species wer found in 5% of the samples. Yeast cell species were found in 20% of the samples. Three samples developed *Pseudomonas* fluorescent equated to 15% of all the samples.

Finally, it's worth noting that bacteria and other micro -organisms can transfer from one toothbrush to another. Toothbrushes do not need to be romantic and placed next to one another with one kissing the other. Keep them separate. Also sick children or adults toothbrush should not be even kept in same holder to prevent spread of infection.[6,8,10]

CONCLUSION:

Tooth brushes kept in bathrooms can be a potent source of infection and this practice should be strongly discouraged. Dentists are in position to create awareness and educate community about it. Further studies to assess the level microbial contamination in relation to age and wear of tooth can be conducted. Finally, we would like to emphasize that cleaning the oral cavity with contaminated tooth brush will do more harm than good. Thus, it is essential for every individual to disinfect his or her brush at regular intervals, thereby preventing reinfection and helping in maintaining a good oral hygiene and general wellbeing.

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