

# Cosmetic treatment can open the door to bacteria

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Injection of fillers: Side effects in the form of stubborn, tender lumps or even lesions are becoming an increasing problem.

Many people have 'fillers' injected into their facial tissue to give them 'bee-stung lips' or to smooth out their wrinkles. Unfortunately, a lot of cosmetic treatment customers experience unpleasant side effects in the form of tender subcutaneous lumps that are difficult to treat and which - in isolated cases - have led to lesions that simply will not heal. Research recently published by the University of Copenhagen now supports that, despite the highest levels of hygiene, this unwanted side effect is caused by bacterial infection.

Injections of fillers were previously reserved exclusively for trauma [treatment](#) – when rebuilding a face disfigured in a traffic accident, for example. However, the jelly-like substances are increasingly being used in beauty treatments with the intention of making lips swell up and to erase the effects of ageing from the skin. Side effects in the form of

stubborn, tender lumps or even lesions are becoming an increasing problem:

"Previously, most experts believed that the [side effects](#) were caused by an auto-immune or allergic reaction to the gel injected. Research involving tissue from patients and mouse models has now shown that the disfiguring lesions are actually due to bacteria injected in connection with the [cosmetic procedure](#). What is more, we have demonstrated that the fillers themselves act as incubators for infection, and all it takes is as few as ten bacteria to create an ugly lesion and a tough film of bacterial material – known as biofilm – which is impossible to treat with antibiotics," says Morten Alhede, a postdoc at the Department of International Health, Immunology and Microbiology, University of Copenhagen.

The results have just been published in the journal *Pathogens and Disease*.

## Biofilm is resistant to antibiotics

Treatment with fillers is very common. According to the American Society for Aesthetic Plastic Surgery (ASAPS), treatment with products based on hyaluronic acid – such as Restylane – constitutes the second-most popular non-surgical cosmetic procedure in the United States. The precise figures for Denmark are not known, but there can be no doubt that the numbers are rising rapidly – and a rise in the number of treatments will inevitably make the side effects more evident.

"Because a lot of cosmetic practitioners refuse to accept that side effects from filler procedures are caused by bacteria, claiming that such problems are caused by allergic reactions, the usual procedure has been to treat with steroids. This is actually the worst possible treatment because steroid injections exacerbate the condition and give the bacteria

free rein. Fortunately, many of the filler producers have now become aware of the risk of bacteria and recognise that the gel can act as a bacterial incubator," says Associate Professor Thomas Bjarnsholt from the Department of International Health, Immunology and Microbiology. He continues:

"The problem will become very serious when the treatment becomes so widespread that people are able to walk in off the street to have their wrinkles smoothed out. Experts recommend keeping facial skin free from make-up for a month before undergoing a treatment involving fillers. Good hygiene is always important. Even when you abide by all the rules and regulations, it is difficult to avoid bacteria completely as they are often buried far below the surface of the skin."

## Beauty with consequence

Researchers estimate that between 1:100 and 1:1000 - depending on the type of filler -develops an unfortunate [bacterial infection](#) which, in the worst-case scenario, may leave the person in question with a permanently disfigured face.

"Most people are unlikely to have any problems undergoing a filler treatment to smooth their skin. However, it's a bit like driving a car: there's nothing wrong with not wearing your seatbelt as long as you don't hit anything. If you do have an accident, however, it's almost impossible to walk away unharmed," says Thomas Bjarnsholt.

The biofilm that can develop in the wake of a filler treatment is resistant to antibiotics.

"The good news is that infections can be prevented by prophylactic antibiotic treatment, i.e. injecting antibiotics together with the filler itself during the cosmetic treatment process. Our new research

emphasises how important it is for all practitioners to follow this procedure to prevent the unwanted complications," explains Morten Alhede.

**More information:** [onlinelibrary.wiley.com/doi/10 ...  
-632X.12139/abstract](https://onlinelibrary.wiley.com/doi/10.1002/med.12139/abstract)

Provided by University of Copenhagen

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