

**Gums, teeth and antibiotics: The dental issues in HHT**  
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For many years, people with HHT and pulmonary AVMs (PAVMs) have been advised to use antibiotics before having a dental procedure. This is called 'antibiotic prophylaxis'. However, there has been great confusion in HHT circles following new guidance to dentists issued in 2007 and 2008 [1, 2]. Although those recommendations referred to heart patients, they have led to dentists being reluctant to give out antibiotics to people with HHT and PAVMs.

If you are confused about the advice you are receiving from your doctors and dentists, or unsure why you need to think about your teeth, then this article may be helpful. It is based on the advice we give to people attending the HHTIC London centre in the UK, and stems from several years of discussions between HHT/PAVM specialists Dr Claire Shovlin and Dr James Jackson, microbiologist Dr Kathy Bamford, and very importantly, the Chairman of the British NICE Dental Committee, Professor David Wray. The summary for dentists is published in the British Dental Journal [3] and can be accessed in full at the journal website.

**Background:**

Bacteria (bugs) from around the teeth and gums can leak into the bloodstream, and if they are not cleared properly, can set up infections at distant sites away from the mouth. For people with pulmonary AVMs and HHT, our biggest concern is that such bacteria can lead to the development of a brain abscess. Ever since this was first recognised, antibiotic prophylaxis has been recommended for people with PAVMs, based on the advice given to people at risk of endocarditis due to heart disease.

At HHTIC London, we have been particularly concerned about this issue for a number of years. In 2000, we approached the British Society for Antimicrobial Chemotherapy and Dental Formulary Sub-Committee who approved a PAVM-specific card for dentists, making it easier for people with PAVMs to explain why they needed antibiotics. From 1999, the team were also gathering 6 years worth of evidence to work out which people with PAVMs were more likely to have a brain abscess. When these data were finally available, they strengthened the link between dental microbes and brain abscess [4]: Most of the bugs grown from PAVM-associated brain abscesses were bugs that had come from the gums, and lots of the PAVM-brain abscess patients described recent dental procedures that would lead to having more bugs in the blood stream [4].

Yet at the same time, we were receiving several calls a month from dentists and PAVM patients, saying that because of the advice from the American Heart Association and British National Institute of Clinical Excellence (NICE) [1,2], our card was invalid and antibiotics should no longer be given.

Who was right?

**Why do heart patients not need antibiotics any more?**

The AHA and NICE withdrew recommendations for antibiotics for people with heart disease because of 1) the low risks of endocarditis without antibiotics; 2) the lack of evidence that antibiotics prevented complications; 3) the knowledge that for some people, antibiotics could cause harm; and 4) Recognition that bugs get into the blood stream from the gums following everyday events such as tooth brushing.

Their main conclusion was to recommend that preventative action was taken long before the trip to the dentist, not by taking antibiotics, but by making sure the gums and teeth were in as healthy a condition as possible.

**What about people with PAVMs?**

Unfortunately, the risk of brain abscess for someone with HHT and PAVMs is a lot higher than the risk of endocarditis for a heart patient. There are several potential reasons for this, which we discuss in our article [3]. But importantly, it means we can't use the same arguments as for heart patients. By highlighting that HHT/PAVM risk of brain abscess is substantially higher than endocarditis risks from heart disease, we have said that for now, antibiotic prophylaxis should still be given to HHT/PAVM patients.

**BOX : WHAT SHOULD I DO?**

- 1: Everyone in HHT families should look after their teeth, and tell all the children in the family to look after their teeth too. It will probably be good for you in other ways too, and will definitely do you no harm.**
- 2: When you go to the dentist, if you have PAVMs, let them know that you are not like a heart patient and that at the moment, you still need "antibiotic prophylaxis". This is important for any procedure including a 'scale and polish'**

**And in the future?**

We still can't be sure we are right. We need further research in the area, and have therefore designed a small trial, for which the HHT Foundation is trying to obtain funding.

**References**

- 1) Wilson W, Taubert KA, Gewitz M et al. Prevention of infective endocarditis: guidelines from the American Heart Association. *J Am Dent Assoc.* 2007 Jun;138(6):739-45, 747-60
- 2) Wray D, Ruiz F, Richey R, Stokes T, Guideline Development Group. Prophylaxis against infective endocarditis for dental procedures- summary of the NICE guideline. *Br Dent J.* 2008;204:555-7.
- 3) Shovlin CL, Bamford K, Wray D. Post NICE 2008: Antibiotic prophylaxis prior to dental procedures for patients with pulmonary arteriovenous malformations (PAVMs) and hereditary haemorrhagic telangiectasia. *Br Dental J* 2008 Nov 205(10):531-3 <http://www.nature.com/bdj/journal/v205/n10/pdf/sj.bdj.2008.978.pdf>.
- 4) Shovlin CL, Jackson JE, Bamford KB, et al. Primary determinants of ischaemic stroke/brain abscess risks are independent of severity of pulmonary arteriovenous malformations in hereditary haemorrhagic telangiectasia. *Thorax* 2008; 63:259-66: <http://thorax.bmj.com/content/63/3/259.full.pdf>

## Dental hygiene in hereditary haemorrhagic telangiectasia

### ***Why do I need to think about my teeth and gums?***

People with PAVMs and HHT are at risk of developing brain abscesses. The bacteria that cause these abscesses are thought to come mostly from the gums. That is why we recommend that you have antibiotics before having a dental procedure which could cause bacteria to leak into your bloodstream and cause an abscess.

Unfortunately bacteria can also leak into your bloodstream from your gums just with everyday activities such as chewing and toothbrushing. You cannot take antibiotics all the time so you will still be at a small risk even if you don't have any dental work carried out.

The more inflamed your gums are then the greater the chances of a significant number of bacteria getting into your bloodstream so the best way of reducing your risks is to make sure your gums are really healthy

### ***How do I make my gums as healthy as possible?***

1. First, you should brush your teeth, and gums, carefully twice a day.
2. Any bleeding associated with your tooth brushing indicates that that bit of gum is unhealthy and inflamed. You should brush such areas especially well to encourage improvement.
3. If an area regularly bleeds on brushing you should point this out to your dentist or hygienist so they can identify any aggravating factors and correct them.
4. You should also floss regularly to keep the areas between your teeth healthy.  
***In this way your healthy gums will keep out the most amount of bacteria when you brush or chew which will reduce your risks as much as possible.***
5. To avoid the development of a dental abscess or gumboil, you should visit your dentist regularly who can treat cavities or problem fillings before an abscess develops.
6. If a dental abscess or gumboil occurs you must be given an antibiotic to kill the bacteria which will be leaking into your bloodstream, but it is best to avoid this happening in the first place

Prevention by having regular dental checks and good twice daily brushing is the best way of avoiding the risk of brain abscess. Make sure your children do this too!

### ***Written by***

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