Endocarditis prophylaxis

Where is the endocardium located?

The heart is a hollow muscle. Its wall consists of three different layers of tissue. From the outside to the inside they are called:

1. **Epicardium** = thin outer layer of tissue of the heart wall

2. **Myocardium** = main part of the heart wall includes the cardiac muscle

3. **Endocardium** = thin inner lining of the interior surface of the heart. It corresponds to the inner lining (endothelium) of blood vessels. The endocardium forms the four heart valves (pulmonary, aortic, bicuspid, and tricuspid valves).
What is an endocarditis?

An infectious endocarditis is an inflammatory disease effecting the inner wall of the heart. It predominantly affects the heart valves and is caused by bacteria or fungi entering the bloodstream. The bacteria may stick to previously damaged heart valves, such as those present in cardiac anomalies, where they multiply resulting in the destruction of the valve. Operatively implanted foreign material (heart valves) that is not yet completely covered by the endocardium is also at risk.

Every intact buccal mucosa of human beings contains bacteria. Bacteria may enter the bloodstream due to very small injuries (micro-lesions) in the buccal mucosa such as when chewing (chewing gum) or during dental treatment (dental hygiene). From the bloodstream, they can spread to the heart and infect the previously damaged endocardium of the heart valves.

An endocarditis is a life-threatening infection of the heart valves. The disease often has an unspecific progress and may go unnoticed for days and weeks. It can result in high fever, shivering attacks, general exhaustion, and reduced physical capacity. It requires long-term treatment with antibiotics, hospitalisation, and possibly a cardiac operation.
How can an endocarditis be prevented?

An endocarditis can be avoided by the following measures preventing the bacteria from being washed into the bloodstream:

1) Healthy teeth and a healthy buccal mucosa reduce the risk of small injuries (micro-lesions) in the mouth.
2) In the event of medical measures, e.g. dental treatment, antibiotics are administered before the procedure starts. This antibiotic endocarditis prophylaxis is prescribed by the physician in charge.

A good dental and oral hygiene is essential regarding the prevention of an endocarditis. Healthy teeth and gums protect against an endocarditis. Piercings and tattoos are possible locations where bacteria may enter the bloodstream so that patients with an increased risk of endocarditis are discouraged from having piercings or tattoos.

Who needs an antibiotic endocarditis prophylaxis?

An antibiotic endocarditis prophylaxis is performed in patients with an increased risk of endocarditis. Information regarding whether you or your child belong to this group of patients with an increased risk can be obtained from your cardiologist. Additionally, you are provided with an ID card for endocarditis prophylaxis.
When is an antibiotic endocarditis prophylaxis imperative?

Antibiotics are administered for the following procedures:
A. Dental procedures, especially where the gums may be injured (e.g. tooth extraction, removing tartar, tissue removal).
B. Procedures involving the upper respiratory tract, especially where the mucosa is injured (e.g. tonsillectomy, polyp removal, tissue removal).
C. Procedures involving the gastro-intestinal system, especially when these organs are inflamed (e.g. appendicitis).
D. Procedures involving the urinary tract and gynaecological examination, especially when these organs are inflamed.
E. Procedure involving the outer skin, especially when there is an inflammation (e.g. abscess).

Please always have your ID card for endocarditis prophylaxis on you and always show it to your physician. He will decide whether an antibiotic endocarditis prophylaxis is required.
How must an antibiotic endocarditis prophylaxis be performed?

The antibiotic is administered as single dose, as juice or tablet, 60 minutes before the procedure. Alternatively, the single dose could also be administered intravenously 30 – 60 minutes before the procedure.

Should the antibiotic not have been taken ahead of a procedure, it can be taken no later than two hours after the procedure. Recommended active agent is Amoxicillin for dental procedures and procedures regarding the upper respiratory tract. The recommended dose is 2 g for adults, and 50 mg/kg of body weight for children. In the event of a penicillin allergy, Clindamycin is used as an alternative active agent. The recommended dose is 600 mg for adults, and 20mg/kg of body weight for children.

Where can you get the antibiotic?

Preliminary to a scheduled medical procedure, the paediatrician, paediatric cardiologist, or dentist in charge will give a prescription for the antibiotic endocarditis prophylaxis.

Further literature:
The following prophylactic measures must already be observed during infancy:

– The «dummy» should only be used by your child. Parents may transfer their own bacteria of the buccal mucosa to the child via the salivary juice if they take the «dummy» into their mouth.
– A good dental and oral hygiene is important for the entire family (grandparents, parents, siblings).
– The teeth must be brushed 2-3 times a day so that gums and teeth stay healthy. In this, parents have a role model function. It is important that parents support their children when they brush their teeth in the evening at least until they reach schoolage.
– After having brushed the teeth in the evening, it is recommended to have the children drink only water and no drinks containing sugar, fruit juices, or milk. These contain lactose and may cause caries.
– Schedule targeted breaks for drinking. Permanent drinking during the day strongly dilutes the salivary juice reducing the protective function for gums and teeth.
– Excess consumption of sweets may damage gums and teeth. Therefore, offer sweets with measure and modestly throughout the day.