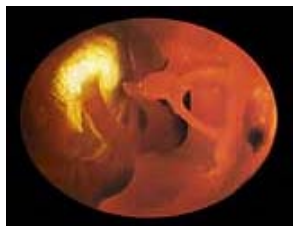


## Otitis media



### How to Treat Middle Ear Infection in Children Background and reflexological treatment

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All reflexologists have probably tried to treat children with otitis media (infection of the middle ear). With reflexologists as well as doctors this is the most common reason for treating children younger than 7. Actually 80% of all children have suffered at least one incidence of otitis media before their 7th year, with a longer duration for boys than girls. After age 9 otitis media seldom appears. (Lous, Jørgen: Secretary Otitis Media in Schoolchildren, Lægeforeningens Forlag, Copenhagen, 1994)

#### Research in Denmark

Before continuing, I would like to mention a study in progress in Denmark. In 1998 a national survey was started of 200 treatment contacts with children between 1 and 6 years of age with ear disorders. The children were selected by physicians and reflexologists.

Part 1 of the study maps the use of reflexology and conventional treatment in the group. Many of the figures I mention in this lecture were derived from this project.

Part 2 of the study, which is still proceeding, will investigate the therapeutic effect of physicians as well as reflexologists. Once the report is finished we shall remember to have it published in the SARS Newsletter!



Whenever you treat a child with otitis media, the parents often have a lot of questions. Then it is very important that you as a therapist understand the physiological and pathological connections and are capable of explaining these to the parents in a trustworthy way. Being able to do so gives you the best possible contact with the parents - and also often with the child.

Therefore, I will start this presentation by answering the questions the parents will ask you:

- What is otitis media, what happens in the ear?
- Symptoms of otitis media?
- How is the middle ear constructed?
- Why do so many children get otitis media?
- What is otitis media, what happens in the ear?
- How do doctors treat otitis media?
- What are the complications of otitis media?
- What should you as a therapist pay special attention to?
- Reflexology - as causal therapy - as symptomatic treatment
- How do you support the reflexology treatment?
- Recommended intake of vitamins, minerals and herbs
- Can you treat a child with grommet?
- How can the parents help?
- How are relapses prevented?

#### What is otitis media, what happens in the ear?

Abnormal Eustachian tube function is the underlying cause in about all cases of otitis media. The Eustachian tube regulates gas pressure in the middle ear, protects the middle ear from nose and throat secretion and bacteria, and drain fluids from the middle ear - wherever you find mucous membranes in the body there will be a secretion, so this is the case in the middle ear as well.

Swallowing causes active opening of the Eustachian tube because of the action of the surrounding muscles. Infants and small children do particularly often have Eustachian tube dysfunctions because it is smaller in diameter and more horizontal.

Obstruction of the Eustachian tube leads to accumulation of serous fluid and lymph, forming a good habitat for bacteria and if they start to grow you have an infection.

Reasons of obstruction: Collapse of the tube, because of weak tissue holding the tube in place - and/or abnormal opening mechanism.

The most common reason is obstruction because of swelling of the mucous membranes caused by an allergic reaction or infection arising from the throat.

Looking in the ear you will see the tympanic membrane being red, irritated and often bulging outward. Inside, in the middle ear the mucous membranes are red and swollen.

#### Different forms of otitis media

There are three main types of otitis media: secretory ('glue ear'), acute and chronic.

##### Secretory otitis media

Secretory otitis media is more commonly known as 'glue ear'. It is caused by blockage of the eustachian tube as a result of allergies, swollen adenoids or acute otitis media and other infections of the nose and throat. The condition is

characterized by a lowered pressure in the middle ear causing production and accumulation of fluid in the middle ear, which dampens down the conduction of sound and reduces hearing.

#### *Acute otitis media*

Also known as bacterial otitis media - is an acute infection of the middle ear and is usually started by an infection in the upper respiratory tract. The most common bacteria causing otitis media are *Streptococcus pneumoniae*, 40% and *Haemophilus influenzae*, 25%. Acute otitis media is the most frequent diagnosis of children in clinical practice.

#### *Chronic otitis media*

Chronic otitis media is the result of a prolonged middle ear infection with perforation of the eardrum. The eardrum can be perforated by sudden changes in pressure (such as a slap to the ear), by trauma from outside objects, or as a result of acute otitis media or blockage of the Eustachian tube. Flare-ups, usually caused by bacteria, may occur after a cold or after water enters the ear during swimming or bathing. Chronic otitis media affects 20-40% of all children under the age of 6.



#### **Symptoms of otitis media**

- Most common symptom is common cold 75%
- Sleeping difficulties 54%
- Fluid in the ear 48%
- Fever 31%
- Pain
- About one third have symptoms lasting 2 weeks or less
- 27% have symptoms lasting 3 months or more.  
(The percentages are from the Danish study, Mette Kjøller).

#### **How is the middle ear constructed**

The middle ear is the air filled cavity between the eardrum and the hearing organ. From the eardrum sound is transmitted to the auditory sense organ in the inner ear via the three tiny bones called malleus, incus and stapes. Linked by delicate joints they form a small orchestra capable of transmitting vibration from the outside to the inside.

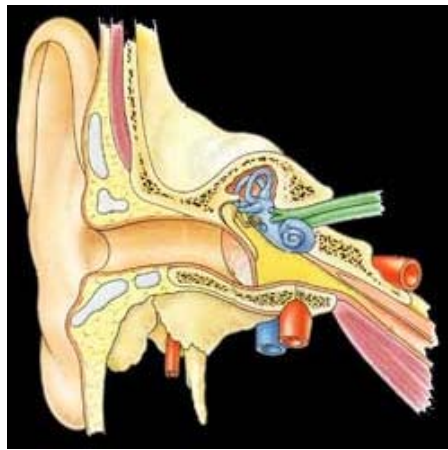
#### **The Eustachian tube**

The Eustachian tube regulates air pressure in the middle ear and drains the natural secretion from the middle ear to the pharynx.

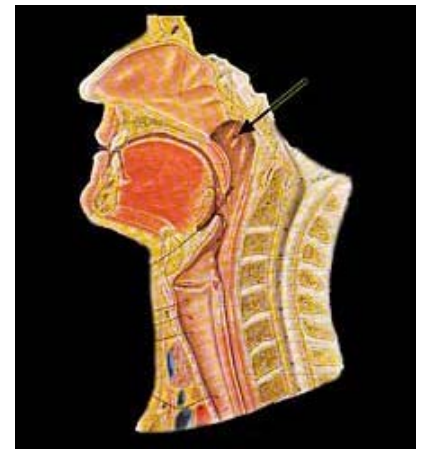
The direction of the tube is from the bottom of the middle ear down, forward and medial to the pharynx. The total length of the tube is 3-4 cm, with the narrowest part having a diameter of 1-2 mm.

Swallowing causes active opening of the Eustachian tube because of the action of the surrounding muscles.

It is important to realize, that the Eustachian tube ends as an opening in the nasopharynx (upper part of the throat). This is the reason that common colds often cause otitis media, simply because the swollen mucous membranes in the nose and throat block the outlet from the Eustachian tube, or because micro organisms migrate through the tube to cause infection in the middle ear.



The ear



Outlet of the Eustachian tube in the throat

### Why do so many children get otitis media?

#### Predisposing factors

These include:

- male sex
- short length of breastfeeding
- attendance at day care centres
- parental smoking
- wet climate
- winter season
- upper respiratory infection
- type of housing
- and possibly allergy

#### Stress

Many children suffer from stress today. Modern children spend many hours in day care institutions with a high noise level and limited space.

Another stress inducing factor can be the changed social pattern, where many children live with a single divorced parent.

Stressed parents may also transmit some of the stress to their children.

#### Allergy and otitis media

The role of allergy as the major cause of otitis media has been firmly established in the medical literature. Most of the children are allergic to food or inhalants or both.

The mucous membranes are particularly affected by milk allergy.

Allergic reactions cause blockage of the Eustachian tube by two mechanisms:

Inflammatory swelling of the tube, and inflammatory swelling of the nose, causing the Toynbee phenomenon (swallowing when both mouth and nose are closed, forcing air and secretions into the middle ear).

One illustrative study of 153 children with ear aches demonstrated that 93,3% of the children were allergic to foods, inhalants or both (Mc. Mahan 1981).

#### Bottle feeding

Recurrent ear infection is strongly associated with early bottle feeding, while breastfeeding of minimum 6 month has a protective effect. Whether this is because of cow's milk intolerance or the protective effect of mother's milk against infection has not yet been proven. It is probably a combination of both.

Another fact is, that it is not a good idea to bottle feed a child lying on her back, as it may lead to regurgitation of the bottles contents into the middle ear.

It is important to end this chapter by stating that there are still different opinions amongst physicians as to whether otitis media has anything to do with allergy or not. Most of the parents are told that it has nothing to do with allergy. You have probably all been confronted with that confusion in your practise, at least I experience this very often!

#### How do doctors treat otitis media?

80% of children with ear infections are treated by a physician (Mette Kjølner 1998).

#### Visual inspection

The doctor looks in the ear (otoscopy) to evaluate the state of the tympanic membrane. A red and irritated eardrum suggests a stage of acute inflammation.



Tympanometer

#### Measuring the pressure in the middle ear (tyimpanometry)

This test determines the functionality of the eardrum by observing its response to waves of pressure, and measuring the pressure in the middle ear.

When the Eustachian tube is blocked air pressure in the middle ear can not be equalled to the atmospheric pressure and as a result of the normal absorption of air by the mucous membranes a negative pressure will arise in the middle ear, thus bending the ear drum inward.

The result of the measurement (tyimpanogramme) enables the doctor to estimate the amount of fluid accumulation in the middle ear.

#### Air douche

Is blowing air into the nose, trying to open the Eustachian tube. Asking the child to drink a glass of water may be just

as effective, as the muscles involved in the swallowing also affects the tube.

### **Nose spray**

Some doctors would recommend treatment of the mucous membrane in the nose and throat with an anti allergic nose spray.

### **Antibiotics**

Are used rather often. It should only be used when there is an acute infection, if it should be used at all. In the Danish study 35% of the children had received or were still receiving antibiotics. A number of studies has showed that there are no significant differences in the clinical course when antibiotic treatments are compared with placebo.

### **Puncturing of the eardrum**

In order to relieve the child of acute pain, the ear consultant may choose to puncture the eardrum (paracentesis) and remove the debris through the hole.



*Grommet in place*

### **Grommet**

If the Eustachian tube is not letting air through, for whatever reason, this blockage can be bypassed by placing a grommet into the eardrum. A grommet is a very small ventilation tube, which is placed into a little 2 mm. incision in the ear drum, to allow air to enter freely into the middle ear. As the hole in the eardrum heals over, it eventually pushes the grommet out into the ear canal. The length of time this takes varies, from about 6 to 18 months. If there is a further collection of fluid in the middle ear after the grommet has come out, it may be necessary to repeat the operation. 18% of the Danish ear-children had a grommet operation.

When children with middle ear infections are being treated by doctors, they much too often receive a standard treatment procedure. Instead the children ought to be individually evaluated and closely observed - but as with all potentially dangerous diseases otitis media should be treated - conventionally as well as unconventionally - under the supervision of a physician.

### **What are the complications of otitis media?**

The risk of infection spreading to the mastoids and brain is of major concern and is the most common reason for giving medical therapy. Again, there is no documentation available to show, whether the complication rate of 0,2-2,0% is different with or without antibiotics - with or without grommet. Very few, only 1-2% of schoolchildren might be expected to have hearing problems as a complication, to a degree that would influence their learning processes.

### **What should you as a therapist pay special attention to?**

Most of your young clients will already have been diagnosed by their doctor when they come to you with otitis media. But some children have not been to the doctor, or maybe the parents seek your treatment because of common cold, disturbed sleep, reduced general well being or other problems, and in these cases, especially with children younger than 7, you should always remember the common symptoms of otitis media. Maybe some of the children you treat for sleeping difficulties, colds or fever have or are developing an ear infection. Don't forget otitis media is the most common disease in children under 7 years of age.

### **Reflexological treatment**

My use of reflexology does not include eastern philosophies, but is inspired by western traditions as they are performed in the Nordic countries and Europe.

I am always very careful to respect the pain threshold of the child and keep her trusting me by never causing unexpected pain. Most important is constantly observing the reactions. It is my experience, that once you have the confidence of the child, she is very often incredibly tolerant and lets me use quite firm grips.

### **The first treatment**

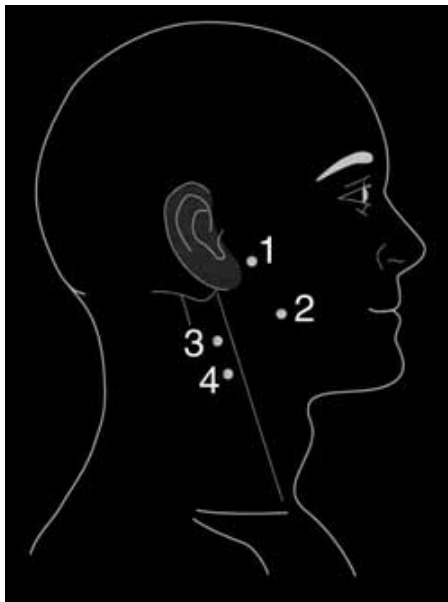
#### **Trigger points**

I often start with a soft, gentle massage of the neck area. Most children love it, they become quite peaceful, and as they relax, I gently press the 4 trigger points directly related to the ear (see illustration). I pay special attention to the first point, if the child allow it.

Trigger points:

- 1: Masseter
- 2: Pterygoideus medialis
- 3: Sternocleidomasteideus
- 4: Sternocleidomasteideus

These points exert a relaxing effect on the mandibular (jaw) joint and the muscles on the side of the neck, and thereby increase the circulation of blood and lymph in the ear region.



I also try to establish whether there might be a dislocated vertebra in the neck, by palpation, by asking the parents if the child mostly turns the head in one direction, or by asking the child if she often has neck pains. In these cases I suggest supplemental treatment by a chiropractor.

- Then I ask the child to turn on the table facing me in order to start treatment of the feet. In this stage I practically never experienced scared or reluctant children, on the contrary.

#### **Reflexology as causal therapy**

Most important is treating the immune system, which is causal therapy. All reflexologists have their preferred way of treating the immune system. Mine is as follows:

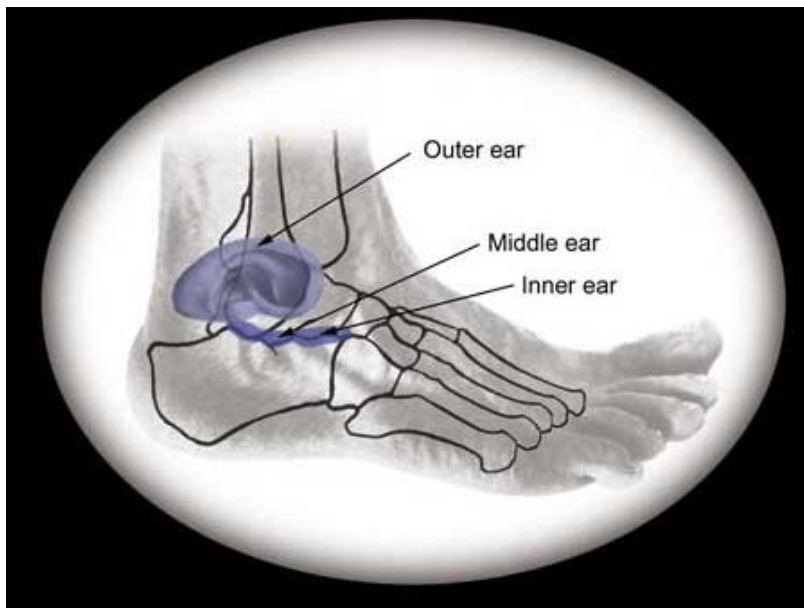
- Solar plexus - I go back to solar plexus again and again in the treatment, many children are very stressed.
- The upper lymph reflexes - again and again.
- Thymus - very important, it is the most important part of the immune system with children.
- Vagal nerve - neck area on the feet and on the lower leg, because the vagal nerve innervates most of the inner organs and has a great influence of the whole body as well as the immune system.
- Spleen
- Adrenals

Supporting areas:

- Liver
- Kidney/bladder
- Small and large intestine

#### **Reflexology as symptomatic treatment**

- Neck reflexes - again I try to find out via the foot if there is a dislocated spine, by using the following test: Check the ear reflex, then press the neck reflex and go back and check the ear reflex again. If the ear reflex has become more painful, this could indicate, that the neck is involved.
- The lower leg - I always pay much attention to the reflex area of the neck on the foot, but also on the lower leg (Karl-Aksel Lind Method, Sweden/Finland).
- Ear reflexes - 4th and 5th toe (Ingham method). I keep a firm pressure for about one minute and ask the child or observe, depending on the age, whether there is a reaction in the ear/ears. Following this I do a gentle massage of the ear reflexes.
- Kidney reflexes - According to both Traditional Chinese Medicine and Anthroposophical Medicine the kidneys are directly linked to the ears.
- Outer malleolus - is a very effective place for treating ear problems. The reflex is much larger and easier to work with (Karl-Axel Lind Method, see illustration below).



*Ear reflexes on the lateral aspect of the foot*



*Spine reflex in the lower leg*

### Reactions

To avoid provoking strong reactions I do a short and careful treatment the first 2-3 times. A common reaction is increased pressure in the middle ear causing pain for the child and anxiety with the parents even though I warn them of this possible reaction. Otherwise the child may have the common reactions to reflexology treatment.

### How do you support the reflexology treatment?

I spend a fair amount of time at the first consultation informing the parents about the possible causes of otitis media, and how they can help support the therapy.

### The immune system

No matter if the mucous membranes are swollen because of a simple cold or as an allergic reaction, the actual cause of otitis media is to be found in the immune defence system. So it is important to examine the factors that disturb the immune system and how to strengthen it.

### Allergy

Prolonged breastfeeding prevents food allergies, especially if the mother avoids sensitising foods and excludes foods to which children are most commonly allergic: dairy products, wheat, egg, poultry, during pregnancy and lactation. Especially during the first 3 months of breastfeeding she should avoid too often repetitions of any food.

The child should be tested for allergy, preferably with a RAST test (radioallergosorbent test) - or avoid the most common allergic foods such as: Dairy products, eggs, wheat, corn, orange and peanut butter.

### Recommended intake of vitamins, minerals and herbs

High therapeutic doses with treatment for a maximum of one month.

#### Remedy

Thymus extract:

Echinacea angustifolia tincture:

Beta carotene:

Vitamin C:

Zinc picolinate:

Bioflavonoids:

#### Dosage

Age x 50 mg a day.

4-6 ml a day

Age x 20.000 a day (max. 100.000 iu)

Age x 500 mg a day (max. 2.500 mg)

Age x 2,5 mg a day (max. 15 mg)

Age x 50 mg a day (max. 250 mg)

- and always a broad range multi-vitamin/mineral pill daily as the basic nutritional supplement

### Interval of treatments

I rather treat 2-3 times weekly for two weeks, then once a week during a few weeks, stepping slowly down to once a month. In my early years as a practitioner I was very proud to be able to finish an ear-child after 2-4 sessions, but experience has proven it well worth continuing with a couple of sessions after disappearance of the symptoms. Otherwise the problem will often return after some time.

It is also a good investment to do preventive treatments once a month for six months or more.

### Can you treat a child with grommet?

Reflexologists sometime debate whether to treat a child with a grommet in the eardrum. Some argue that reflexology treatment might accelerate the natural expulsion of the foreign body. To my experience this is absolutely no concern. The child will always benefit from reflexological therapy and the grommet will be expelled whenever the body decides it is time to do so.

### How can the parents help?

Besides changing the eating habits and administer supplemental vitamins and minerals as mentioned above, the parents can also help in other ways:

#### *Local therapy on the ears*

With a child in pain locally applied heat is often very soothing. It can be hot applied as a pack with warm oil. Mullein oil is particularly beneficial.

#### *Reflexology at home*

As a follow-up on the first 2-4 treatments, I ask the parents to massage the neck and ear region at home. After the following sessions, I ask them to extend the home treatment with pressure and massage of the area between all toes. 5-10 minutes a day.

#### *Tobacco*

Avoid subjecting the child to passive smoking.

#### *Swimming*

Swimming (especially in public swimming pools) contains a risk of picking up harmful bacteria and should therefore be avoided for children with perforated eardrums (grommet or rupture), even though some ear consultants advice the use of earplugs or even dental chewing gum to seal the ear canal.

Swimming is not contraindicated for children with otitis media providing the eardrums are undamaged. Diving and underwater swimming should always be avoided because the increased pressure in the ear canal may be painful or cause rupture of a weakened eardrum.

#### **How are relapses prevented?**

I recommend continuing use of herbs and supplements of vitamins and minerals, but in fewer and in lower doses:

<b>Remedy</b>	<b>Dosage</b>
Echinacea angustifolia tincture	recommended dosis
Vitamin C:	Age x 100 mg a day (max.500 mg)
Zinc picolinate:	Age x 1,0 mg a day (max. 5 mg)
Bioflavonoids:	Age x 20 mg a day (max. 100 mg)

- and always a broad range multi-vitamin/mineral pill daily as the basic nutritional supplement!

Keep on avoiding dairy products, and hold back on the other most common allergenic foods like eggs, wheat, corn, orange and peanut butter.

Reflexology once a month.

After the age of 7 there is a dramatic decline in the occurrence of otitis media, and after 9 years the problem is rarely seen.

#### **Final comments**

A number of studies have shown, that there are no significant differences in the clinical course when conventional treatments are compared to placebo. Specifically, no differences are found between non-antibiotic treatment, grommets, grommets with antibiotics, and antibiotics alone. Children who did not receive antibiotics, however, did have fewer recurrences than those receiving antibiotics.

These results together with the high rate of recurrent ear infections following insertion of grommets suggest, that conservative treatment alone would reduce the rate and affect the financial cost of otitis media in a positive way. Many children with otitis media are treated repeatedly with penicillin, which may form the basis for development of a chronic allergy later in life!

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