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Opieka pielęgniarska nad dzieckiem po zabiegu usunięcia migdałka gardłowego i migdałków podniebiennych

Nursing Care for a Child After Adenoidectomy and Tonsillectomy

Abstract

Introduction. Przerost migdałków to dość powszechny problem laryngologiczny. Występuje zazwyczaj w trakcie infekcji wirusowej, jednak często trzeci migdał nie obkurcza się po chorobie samoistnie. Do bezwzględnych wskazań wykonania zabiegu usunięcia migdałków należą m.in. bezdech oraz niedosłuch, które nawracają pomimo leczenia zachowawczego. Zabieg u dzieci wykonywany jest w znieczuleniu ogólnym z intubacją dotchawiczą.

Cel. Celem pracy było przedstawienie zagadnień dotyczących opieki pielęgniarskiej nad dzieckiem po zabiegu tonsilloadenotomii wykonanym w znieczuleniu ogólnym.

Materiał i metody. W pracy wykorzystano metodę badawczą indywidualnego przypadku z techniką wywiadu z opiekunami dziecka, obserwacji pielęgniarskiej oraz jakościowej analizy dokumentacji pacjenta.

Przegląd. U dziecka bezpośrednio po zabiegu tonsilloadenotomii wyodrębniono szereg problemów pielęgnacyjnych. Pielęgniarka jako członek zespołu terapeutycznego, uczestniczy w procesie leczniczym i diagnostycznym i wraz z lekarzem określa cele diagnostyczno-lecznicze, które pozwolą powrócić dziecku do pełnego zdrowia.

Wnioski. Prowadzone przez pielęgniarkę działania w zakresie profilaktyki, terapii, rehabilitacji oraz edukacji i wsparcia psychicznego pozwoliły na poprawę jakości życia dziecka po operacji tonsilloadenotomii oraz pozwoliły na prawidłowe zaangażowanie rodziców/opiekunów w opiece nad dzieckiem oraz adaptacji do nowej sytuacji zdrowotnej.

Słowa kluczowe: migdałki, dziecko, usunięcie migdałków, leczenie operacyjne, tonsillectomia, opieka pielęgniarska

Summary

Introduction. Hypertrophy of the tonsils is a common ENT problem, often arising during viral infections. In many cases, the third tonsil (adenoid) does not regress spontaneously after the infection. Absolute indications for tonsillectomy include conditions such as sleep apnoea and hearing loss that persist despite conservative treatment. Tonsillectomy in children is performed under general anaesthesia with endotracheal intubation.

Aim. The aim of the study was to present nursing care issues for a child after undergoing adenoidectomy and tonsillectomy performed under general anaesthesia.

Material and Methods. The study employed the individual case research method, using techniques such as interviews with the child's caregivers, nursing observation, and qualitative analysis of the patient's documentation.

Overview. In the child, immediately after an adenoidectomy and tonsillectomy procedure, a number of care problems were identified. As a member of the therapeutic team, the nurse participates in the treatment and diagnostic process, working alongside the doctor to establish diagnostic and therapeutic goals aimed at restoring the child's health.

Conclusions. Nursing interventions in prevention, therapy, rehabilitation, education, and emotional support helped improve the child's quality of life following the adenoidectomy and tonsillectomy. These actions also enabled the appropriate involvement of parents or guardians in the child's care and their adaptation to the new health situation.

Keywords: tonsils, tonsillectomy, child, removal of tonsils, surgical treatment, nursing care

Introduction

Tonsils are an important component of the immune system in children. With age, palatine tonsils should decrease in size, and the pharyngeal tonsil should completely disappear. Overgrown tonsils in children is a fairly common ENT problem. It usually occurs during a viral infection combined with upper respiratory tract symptoms, but they can also persist between such infections. Enlarged tonsils should not be a cause for concern, as this is part of the body's immune response to contact with pathogens, such as viruses or bacteria. However, it is concerning if the so-called third tonsil does not shrink spontaneously after illness and obstructs nasal breathing, causing excessive mucus production (i.e. chronic nasal congestion), and forcing the child to breathe solely through the mouth. Absolute indications for the procedure include speaking through one's nose, sleep apnoea and hearing loss, but also frequent upper respiratory tract infections that recur despite conservative treatment. *Tonsillectomy and adenoidectomy*, which involve the removal of the pharyngeal tonsil and the palatine tonsils, are performed under general anaesthesia with endotracheal intubation in children. The healing process of the postoperative wound lasts about four weeks, while pain may persist for approximately two weeks. However, it is crucial to maintain a proper post-operative diet i.e., cool, liquid, and soft foods and ensure adequate hydration.

Aim

The aim of the study was to present issues related to nursing care for a child after tonsillectomy and adenoidectomy performed under general anaesthesia.

Overview

The impact of the pharyngeal tonsil and palatine tonsils on the immune system

Tonsils are part of the immune system. Their role is to defend against microorganisms and bacteria—tonsils produce antibodies that regulate inflammation. This local defensive action helps prevent the spread of infection. Reddened and enlarged tonsils are a defensive reaction of the body [1].

The most common condition affecting the pharyngeal tonsil is recurrent infection chronic or acute. These infections can cause tonsillar hypertrophy, which in turn leads to impaired patency of the upper respiratory tract. Clinical assessment of the pharyngeal tonsil should be based on X-ray imaging and otolaryngological examination, as the tonsil is closely related to the sinuses, nose, and middle ear [2].

Hypertrophy of the palatine tonsils is diagnosed based on characteristic symptoms such as loud snoring, mouth breathing, speaking through one's nose, irregular breathing patterns, and restless sleep. If there are intermittent nasal discharge, chronic cough, or mucus dripping down the back of the throat, attention should be paid to the involvement of the paranasal sinuses. Nasal obstruction in children due to hypertrophy of the pharyngeal tonsil can be diagnosed through physical examination [2]. In more advanced cases, there is a risk of psychomotor developmental disorders and even heart failure. In children with Down syndrome (who have decreased muscle tone), respiratory and airway issues can occur with minimal enlargement of the palatine tonsils and the pharyngeal tonsil [2].

There is only one pharyngeal tonsil (commonly known as the „third tonsil") and it is located deeper than the palatine tonsils—in the nasopharynx. It is not visible to the naked eye. During the early years of life, the pharyngeal tonsil grows rapidly, but it decreases in size and eventually disappears during adolescence. In subsequent years, the protective role of the pharyngeal tonsil is taken over by the palatine tonsils and lymph nodes. However, in children aged 3 to 6 years, hypertrophy of the pharyngeal tonsil can occur, often necessitating its removal. This is because, due to its size (hypertrophy is considered significant when it occupies more than 60% of the nasopharyngeal volume), the enlarged tonsil obstructs the airflow through the nasopharynx where it is located. It also causes pressure on the Eustachian tubes, leading to fluid accumulation in the middle ear cavity, which can result in hearing loss or recurrent ear infections often with effusion [3].

The palatine tonsils are composed of lymphoid tissue and are covered by a stratified squamous non-keratinising epithelium. They produce antigens that are crucial for the production of immune antibodies. During upper respiratory infections in children, the tonsils enlarge as they produce more antigens. When the infection resolves, the tonsils shrink back to their normal size. If a child frequently suffers from infections, the tonsils remain persistently enlarged, indicating a constant state of readiness to combat pathogens [3].

A local defence response and the process of antigen recognition and neutralisation takes place in the tonsils. This is due to the stimulation of both cellular and humoral immune responses, as well as the recirculation of lymphocytes, which triggers generalised immune reactions. In children between the ages of three and about eleven years, the tonsils exhibit the greatest functional activity and play a key role in the maturation and development of the immune system [3]. Therefore, the primary roles of the tonsils are [4]:

- the production of antigens for the generation of immune antibodies to protect the body against various types of microorganisms or allergens,
- a local defence response involving the recognition of antigens, their neutralisation and destruction through the development of cellular and humoral responses [4].

Aetiology and symptoms of pharyngeal tonsillitis and palatin tonsillitis

The most common cause of tonsillar hypertrophy is recurrent bacterial and viral infections of the upper respiratory tract (recurrent tonsillitis, pharyngitis). Equally important are also factors such as allergic rhinitis, nasal mucositis as well as exposure to tobacco smoke. Tonsillar hypertrophy can also be caused by food allergens, inhalant allergens, and bacteria, which are strong allergenic factors. The most common aetiological agent of acute pharyngitis and tonsillitis in children are viruses, which account for 70%–90% of all infections (mainly rhinoviruses, adenoviruses and enteroviruses). The remaining 10%–30% of infections are caused by bacterial infections [5].

Viral aetiology

The most common viruses causing throat inflammation are Rhinovirus, Coronavirus, Herpes Simple, RS, Coxsackie A, but also other enteroviruses. Infection is transmitted through the droplet route. There is pain during swallowing, a feeling of persistent mucus, scratching and itching in the throat causing attacks of dry cough, and sometimes pain radiating to the ear. A fever is also present, but it is not a permanent symptom. There is also a cough and hoarseness. The mucous membrane of the throat is reddened and distended, slightly drying. Enlarged lymphoid nodules are seen on the back wall of the throat. Small vesicular lesions may appear on the palatal arches and soft palate, sometimes with exudate. Infected tonsils are enlarged, painful and covered with

a light-coloured coating. The most common complications of pharyngitis include: ear infections, accompanied by an increase in body temperature, muscle and joint pain, and even serous exudate appearing in the nasal cavities as well as symptoms indicative of rhinitis [5] [6].

In viral pharyngitis, the following symptomatic treatment is used [3]:

- topical disinfectants or anaesthetics (sprays, lozenges, gargle solutions) containing benzydamine or lidocaine,
- analgesics and antipyretics (e.g. Paracetamol, Ibuprofen) and sometimes mucolytic drugs,
- drinking plenty of fluids,
- prolonged rest,
- if symptoms persist, antibiotic therapy should be considered [3].

Bacterial aetiology

Infections caused by bacteria occur at a much lower frequency than viral infections. The aetiological agents causing bacterial infections are group A beta-hemolytic streptococci, particularly Streptococcus pyogenes, which accounts for 90% of all infections in children over three years of age. Over-colonisation of these bacteria on the tonsils leads to the development of inflammation due to the secretion of specific proteins by the streptococci, which stimulate the production of cytokines (pro-inflammatory factors) by immune cells. This leads to the development of swelling, fever and cellular dysfunction [4].

Streptococcal infection begins suddenly. It presents as a severe sore throat that makes swallowing difficult, sometimes there is abdominal pain, nausea; vomiting may also occur because some streptococci enter the digestive system through the oesophagus, which is located close to the tonsils [3]. The tonsils themselves are swollen and vividly red. The tongue is initially covered with a whitish coating and then takes on a distinctive „raspberry" colour. The mucous membrane of the palate is covered with petechiae. The anterior cervical lymph nodes are enlarged. When the tonsils are infected with bacteria, there is no cough or rhinitis. It is important to note that this type of inflammation is particularly prevalent at a young age (5–15 years), with incidence in winter or early spring [6].

Tonsillitis caused by streptococci (bacterial infection) should be treated with an antibiotic. The optimal treatment period is 10 days. During this time, the pyogenic streptococci are eliminated from the throat and the risk of complications such as rheumatic fever is reduced. The condition of the affected child should improve twenty-four hours after the start of treatment [6].

In situations where the tonsils are not very hypertrophied, pharmacological treatment is used. In other situations, surgical treatment – i.e. tonsillotomy or tonsillectomy – is recommended. The most common indication for tonsillectomy and adenoidectomy in children is frequent and recurrent acute or chronic tonsillitis of the palatine tonsils [7] [8].

Procedures on the palatine tonsils and pharyngeal tonsil are performed under general endotracheal or intravenous anaesthesia and in children who are at least three years old. The most commonly performed procedure in children is adenotonsillotomy, i.e. excision of the pharyngeal tonsil (adenoidectomy) and trimming of the palatine tonsils (tonsillotomy). Tonsillectomy, or removal of the palatine tonsils, is more likely to be performed in older children who develop acute or purulent palatine tonsillitis more than five times a year [9].

Care for the child after tonsillectomy and adenoidectomy immediately after being brought from the operating theatre

Tonsillectomy and adenoidectomy are procedures that involve serious interference with the child's body. Therefore, the postoperative period immediately after the procedure is very important for the success of the treatment. The objectives of postoperative nursing care are as follows [10]:

- monitoring the child's basic vital functions (RR values, pulse, saturation, respiratory rate)
- early recognition of life-threatening events in the child and their handling,
- ensuring effective analgesia after the procedure,
- maintaining the child's homeostasis,
- early recognition of postoperative laryngological and anesthesia-related complications [10].

The well-being and safety of the young patient is strongly influenced by the positioning of its body. In the first hours after surgery under general anaesthesia, the child should be placed in a safe position, either on the side or on the stomach with the head turned to the side. Such a position allows the child to breathe freely and prevents the child from choking on vomit. It also facilitates observation for postoperative wound bleeding (bleeding from the throat or nose) [11].

The reactions of children who return to the recovery room after the surgery vary. Usually, after waking up, children are restless and irritable, do not respond to their parents' attempts to calm them down, there are uncoordinated body movements observed as the child's state of consciousness has been influenced by the anaesthetic drugs. Until full recovery of consciousness, the child remains under the constant control of the nurse and one of the parents [11].

The nurse's role is important at that stage – the nurse should explain to the caregiver the reason for the child's behaviour, what influenced it, how to behave and what to do to make the child calmer [12,13].

Some children staying in the postoperative room after the surgery are calm, quiet and indifferent to the entire situation. They are aware of what is happening and fall asleep in their bed without problems.

Therefore, nursing actions must be skilfully adapted to the situation, the child's behaviour and the parents' reactions [10].

Postoperative follow-up must include a systematic assessment of the child's state of consciousness to assess the degree of awakening. The nurse assesses:

- visual response (does not open eyes, opens eyes due to pain, opens eyes on voice command, opens eyes spontaneously),
- the child's verbal response to questions (no verbal response, agitated and anxious, restless in response to stimuli, crying when hugged, smiling),
- the child's awareness of time, place, surroundings and itself (appropriate to the child's age),
- motor response (no motor response, able to localise pain, obeys commands).

Immediately after the child is brought to the recovery room, it is connected to a cardiac monitor – an electronic device that monitors the heart and signals the occurrence of abnormalities. The most important vital parameters to be monitored in children after the surgery are: blood pressure, pulse, respiration and body temperature. Deviations of these parameters from the norm are usually the first signs of postoperative complications such as bleeding or dyspnoea. During the first two hours after the surgery, the parameters are measured every 15–30 minutes, then every 1–3 hours – depending on the child's general condition, medical recommendations or the course of the procedure [12,14].

Heart rate measurement – at the beginning of the postoperative period, the heart rate value increases. This is due to stress and postoperative pain and is sometimes related to the administration of perioperative drugs, respiratory failure or heart failure [14]. A decrease in heart rate may occur after the administration of analgesics, excessive administration of anaesthetic drugs but also in cardiac conduction disorders.

Blood pressure measurement – it is done when the child is calm, preferably in a lying or semi-sitting position [14]. The measurement should not be performed on a limb with a peripheral venous catheter. The increase in blood pressure may be caused by increased pain, drug intake, or excessive body hydration. Decreased blood pressure values may be due to excessive sedative or analgesic drug administration or postoperative wound bleeding [14].

Respiration measurement – this is an important parameter in determining the child's condition in the postoperative period. It allows to assess the state of the respiratory system and the correctness of the breathing process. Attention should be paid to the frequency and quality of breathing, whether inhalation or exhalation is not difficult, whether the child breathes through the mouth or nose, but also to the involvement of respiratory muscles and the colour of the skin and nails. Correct breathing is sufficiently deep and regular, and breathing should take place through the nose, with no difficulties. Unfortunately, in children with hypertrophy of the palatine tonsils, it takes place through the mouth. Measurements are taken by placing a hand on the child's chest and counting the breaths for one minute. Too fast, too slow or too shallow breathing may

indicate respiratory or circulatory disorders, severe pain or an elevated body temperature [14].

Measurement of body temperature – it is done to determine an increase or decrease in body temperature and confirm or exclude complications such as infection.

The administration of anaesthetic drugs and the loss of body heat during surgery can cause shivering in the child in the postoperative period [14].

All measurements taken are recorded by the nurse in the patient's measurement chart.

The nurse's task is to ensure that the body temperature is correct, e.g. by administering antipyretics ordered by the doctor. It is also important to maintain an appropriate microclimate in the recovery room in which the child is staying – the temperature in the room should oscillate between 18 and 22°C and the air should be humid. Excessively high room temperature and dry air causes the mucous membranes in the oral and nasal cavities, which have been compromised during surgery, to dry out and crack, eventually leading to oral or nasal bleeding. Drying out of the mucous membranes is dangerous because it weakens the body's protective barrier, making it easier for microorganisms to enter the body [14].

It is also important to monitor the colour of the skin and mucous membranes, as well as capillary refill, which is the time it takes for normal colour to return to the nail after pressing on it for 5 seconds. A normal response should take less than 2 seconds. If this time is prolonged, postoperative anaesthetic or surgical complications may be considered [10].

After a tonsillectomy and adenoidectomy, the child may experience a taste of blood in the mouth. This occurs because there is significant bleeding during the procedure. This is a normal phenomenon if the postoperative course is going smoothly. To ease this sensation, the tongue and mouth should be moistened with cool water, and after the child is fully awake, an oral hygiene procedure should be performed under the supervision of a nurse or caregiver [15].

The recovery period after surgery is associated with certain inconveniences. This refers to the oral intake of fluids. Fluid intake is regulated according to the prescription sheet and depends on the child's weight and the amount of blood lost during the procedure. Liquid, cool, and soft foods can be introduced the day after the procedure [16].

A very important task of the nurse, in addition to those mentioned above, is the assessment of the intensity of pain. Assessment of pain intensity should be carried out at consistent intervals (every 2–3 hours). The most reliable method of assessing the pain intensity is the assessment made by the child. Children most often report throat pain when swallowing saliva. There are situations where the child is unable to assess the level of pain on their own. In such cases, it is necessary to observe the child's behaviour, paying attention to facial expressions, crying, irritability, or the child's reaction to commands [17].

The methods of pain assessment should be adjusted according to the child's age and verbal communication abilities. Subjective pain assessment scale: – does not hurt; – slightly hurts; – moderately hurts; – hurts very much.

However, the most commonly used method of pain assessment is the visual (pictorial) scale, which is suitable for preschool and school-aged children [18].

For pain management in children following otolaryngology procedure, non-opioid analgesics, such as paracetamol and metamizole, are used. These provide both pain relief and fever reduction. A non-pharmacological method of pain relief is cryotherapy. It involves the use of special thermophores filled with ice and protected by a fabric cover. Cold therapy relieves pain of a localised nature [19].

As the postoperative wound heals, a white coating appears on the tonsil sites. This is fibrin, which is a normal part of the healing process, protecting the postoperative wound from contamination or irritation. It absolutely must not be removed – once the wound has sufficiently healed, the fibrin will fall off on its own [5].

A child's recovery after a tonsillectomy is a very individual matter. It typically takes about one to two weeks and depends on compliance with medical and nursing recommendations. During this time, physical exertion and activity should be limited, the child should stay at home, follow a postoperative diet, and consume an adequate amount of fluids. Only then will recovery proceed properly [4].

Postoperative complications

The postoperative period after tonsillectomy is associated with the possibility of the following complications:

- hoarseness after intubation
- nausea and vomiting
- risk of infection in the peripheral cannula insertion area
- fever
- dyspnoea
- bleeding from the surgical wound.

Cough, sore throat and hoarseness are common complications in children caused by the presence of an endotracheal tube during the procedure. The complications disappear after a few hours.

Complications in the form of nausea and vomiting after the procedure are very common. They are caused by blood and saliva flowing into the stomach during tonsillectomy, which irritates the gastric mucosa, causing nausea and vomiting. They appear suddenly and are worse when the body position is changed. Vomiting has the appearance of digested blood, but in the case of bleeding from the surgical area, the child vomits fresh blood. To relieve vomiting, metoclopramide or ondansetron should be administered by drip infusion after consultation with the physician [20].

Conclusions

Providing extensive, comprehensive care to the child after surgical removal of the tonsils is one of the most important elements of care. The professional actions taken by the nurse during the entire process of care and treatment during the child's stay in the hospital allow for quick control of complications and threats to the child's life. The nurse's activities in terms of prevention, therapy, rehabilitation, education and mental support improved the quality of life of the child after tonsillectomy and allowed for the proper involvement of the parent/guardian in the child's care and adaptation to the new health situation [21].

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