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A 19-Years-Old Male with Left Maxillary Abscess: Case Report

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Abstract

Purpose: The purpose of this report is to present a case of a left maxillary abscess in a 19-year-old male, analyze its etiology, risk factors, clinical symptoms, diagnostic examinations, and the treatment provided. This report also highlights the importance of prevention and proper management to improve patient prognosis.
Methodology: The methodology used in this report is a clinical case study. Data were collected through anamnesis, physical examination, and supporting examinations such as CT scan and histopathology. The patient's management was analyzed based on existing medical theories and appropriate treatment was provided according to the patient's condition.
Results: The patient was diagnosed with a left maxillary abscess, presenting with persistent pain and swelling in the left cheek for two months.CT scan findings suggested left-sided sinusitis with a possible abscess, while histopathology confirmed chronic sinusitis.The patient received antibiotic therapy (Ceftriaxone and Metronidazole), symptomatic treatment (Santagesic, Methylprednisolone, and Ranitidine), and education on oral hygiene and follow-up care.The patient had a history of left maxillary surgery and smoking habits, both of which were identified as significant risk factors for developing the condition
Applications/Originality/Value: This report provides insights into the importance of early diagnosis and proper management in maxillary abscess cases.The findings can be useful for healthcare professionals to understand clinical signs and effective treatment approaches for similar cases.The study emphasizes the need for preventive measures, such as maintaining good oral hygiene and avoiding risk factors like smoking.

Introduction

An abscess is an infection of the skin and subcutaneous tissue with symptoms of a pus-filled pocket. While a maxillary abscess is an infection of the upper jaw that begins as a dentoalveolar infection (infection of the teeth and surrounding tissue) that produces pus (Dewi et al. 2019). The causes of this maxillary abscess include tooth infection, namely bacteria that enter through the tooth cavity can spread to the tissue around the tooth root and cause a periapical abscess, trauma where injury to the teeth or jaw, such as a broken tooth or trauma due to an accident, can be a pathway for bacteria to enter and cause an abscess, periodontal disease such as severe gum infection (periodontitis) can spread to the jawbone and cause a periodontal abscess, unsterile dental procedures, a weak immune system, chronic diseases, and sinus infections such as chronic sinusitis or other sinus infections can spread to the maxillary bone and cause a maxillary abscess (Dewi and Sucipta, 2017). Risk factors for left maxillary abscess can be obtained from poor oral hygiene, dental and gum disease, conditions such as dental caries (cavities) and periodontitis (gum infection) are major risk factors, history of trauma to the teeth or jaw, unsterile dental procedures, weak immune system, smoking habits, excessive alcohol consumption, chronic medical conditions, chronic sinus infections, and lack of access to dental care (FDI World Dental Federation, 2017).

The pathophysiology of maxillary abscess can be explained starting from bacteria that infiltrate healthy tissue, causing infection. Some cells die and are destroyed, leaving a cavity containing infected tissue and cells. White blood cells, which are the body's defense against infection, move into the cavity, and after swallowing bacteria, the white blood cells will die. These dead white blood cells form pus. As a result of this accumulation of pus, the surrounding tissue will be pushed by the tissue that eventually grows around the abscess and becomes a boundary wall. This abscess

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is a body mechanism to prevent further spread of infection. If an abscess ruptures in the body, the infection can spread into the body or under the surface of the skin, depending on the location of the abscess (Sumeja, 2017).

Symptoms include severe pain, local tenderness that can be reproduced by palpation, poor dental hygiene, unrepaired dental trauma, facial erythema, trismus, dysphagia, fever, lymphadenopathy, and on oral examination, the suspected infected tooth may be discolored, have visual damage to the enamel, or be surrounded by gingival erythema and swelling. Signs such as altered mental status and dyspnea should be of particular concern. Complaints that cause patients to come to the hospital are usually due to swelling and pain in the left cheek, heat, swelling, and difficulty opening the mouth. From a previous history, 80% of maxillary abscess patients have had dental infections. In the anamnesis, questions can be asked about whether there is a history of trauma to the facial area, previous dental or sinus infections, a history of chronic diseases such as diabetes or other immunocompromised conditions, whether there is pain in the facial area, especially around the upper jaw (maxilla), swelling of the face, especially in the area around the upper jaw, redness of the skin in the swollen area, increased pain when pressing the swollen area, fever and general malaise (feeling unwell), difficulty opening the mouth or chewing, the presence of pus coming out of the infected area (abscess). The diagnosis of patients with maxillary abscesses is mainly done through clinical examination. Generally, patients experience an increase in palpable volume during palpation in the maxillary area. Pus appears to collect in the maxillary area, this condition can cause infections such as high fever, malaise, tachycardia, and chills (Yuliati, 2005).

Further examinations that can be performed on maxillary abscess include laboratory examinations. Routine blood tests show leukocytosis. Aspiration of purulent material can be sent for culture for antibiotic resistance testing. In addition, ultrasonography can be performed which provides an accurate picture of the head and neck area and provides information about the nature of the lesion, its extent, and its relationship to surrounding structures. Conventional and digital radiography allow the diagnosis of the disease, but do not provide any indication of its nature. So, together with clinical and histopathological examinations, real-time ultrasonographic imaging can be a valuable tool in the diagnosis of orofacial swelling. Then panoramic dental x-ray examination or OPG is useful for seeing focal dental infections (Fonseca, 2000).

There are three treatments for maxillary abscess, namely Drug treatment. In this treatment, appropriate and adequate antibiotics need to be given to relieve the infection. Effective antibiotics are penicillin, erythromycin, clindamycin, Cefadroxil, Metronidazole, tetracycline. If there is a suspected causative germ that is resistant to penicillin, or the presence of opportunistic or anaerobic germs, then it is necessary to consider the use of non-penicillin antibiotics. Next, there is surgical treatment. Removal of pus by incision and drainage is a very important action in the treatment of oromaxillofacial abscesses and maxillary abscesses. This can reduce pain and speed up the healing process. Incision can be done if the pus has been localized in the surface area, there is already fluctuation. Finally, there is treatment for the causative tooth. The causative tooth needs to be extracted if it is no longer possible to treat endodontically. Tooth extraction is done after signs of infection have subsided, because if it is done during the acute phase, it is feared that the infection will spread (Sumeja, 2017).

Case description

We report a case of maxillary abscess left from a 19-year-old male patient, who came to the ENT polyclinic of Karanganyar Hospital with the main complaint of pain and swelling of the left cheek since 2 months ago. The complaint of pain in the left cheek was felt all the time, and the complaint of swelling of the left cheek was not reduced. The patient admitted that there was a lump on the left cheek the size of a marble, the lump could move, and was not painful. The lump was increasingly painful when the patient forgot to take medicine, and was not painful after taking medicine and while sleeping. The patient's nose complained of a runny nose since 1 week SMRS and mucus discharge, mucus was felt coming out of both nostrils, and both nostrils were blocked. Mucus and nasal congestion were felt all the time, reduced when sleeping and after taking medicine, worsened after drinking ice. The right and left ears did not ring, did not discharge fluid, did not complain of pain in the ear when the nose was blocked. The throat was not painful to swallow, but the patient's mouth could only open a maximum of 2 fingers because it was painful to open his mouth. Complaints accompanied by cavities (+) in the upper right molar since 2 years ago and pain (+) in the lower right molar and upper left molar, complaints of nausea and vomiting were denied. The patient admitted that he had a history of maxilla sinistra surgery at Dr. Moewardi Hospital (RSDM) in 2022 and maxilla ROI surgery in 2023 at PKU Karanganyar and smoked (+).

The general condition of the patient appeared mildly ill, with compos mentis consciousness, blood pressure 120/80, pulse rate 80x/minute, temperature 36.3 C and O2 saturation 98% room air. ENT examination was performed on the nose and from anterior rhinoscopy it was found that the nose appeared hyperemic (+/+), secretion (+/+), concha hypertrophy (+/+), deformity -/-. On palpation, there was nasal tenderness (-) and maxillary sinus pain (-). On facial inspection, there was a swollen left cheek (+), on palpation there was a mobile lump (+) and was not painful. Supporting examination was performed in the form of a CT scan with the results of a CT scan of the Paranasal Sinus in the form of thickening of the mucosa in the maxillary sinus with lucent air bubbles in it which appeared to spread to the left ethmoid sinus, left frontal and part of the left nasal cavity (sinusitis picture), still possible with an abscess in it with a differential diagnosis of left sinonasal mass, and right maxillary sinusitis. The results of histopathological examination of small tissue concluded chronic sinusitis in the left maxilla. From the results of the examination, the patient was diagnosed with a left maxillary abscess. The patient was then given therapy in the form of RL fluid 20 tpm, Ceftriaxone Injection 1gr/12 hours, Metronidazole Infusion/8 hours, Santagesic Injection 1 amp/8 hours, Methylprednisolone Injection 12.5 mg/12 hours, Ranitidine Injection 1 amp/12 hours.

Discussion

In this case, the patient is a 19-year-old male who came with the main complaint of pain and swelling of the left cheek since 2 months ago. The complaint of pain in the left cheek was felt at all times, and the complaint of swelling in the left cheek was not felt to be decreasing. The patient admitted that there was a lump on the left cheek the size of a marble, the lump could move, and was not painful. The patient's nose complained of a runny nose since 1 week SMRS and mucus discharge, mucus was felt coming out of both nostrils, and both nostrils were blocked. The throat was not painful to swallow, but the patient's mouth could only open 2 fingers at most because it hurt to open his mouth. Complaints accompanied by cavities (+) in the upper right molar since 2 years ago and pain (+) in the lower right molar and upper left molar, complaints of nausea and vomiting were denied. The patient admitted that he had a history of maxilla sinistra surgery at Dr. Moewardi Hospital (RSDM) in 2022 and maxilla ROI surgery in 2023 at PKU Karanganyar and smoking (+).

An abscess is an infection of the skin and subcutaneous tissue with symptoms of a pus-filled pocket. While a maxillary abscess is an infection of the upper jaw that begins as a dentoalveolar infection (infection of the teeth and surrounding tissues) that produces pus(Dewi et al. 2019). The causes of maxillary abscess include tooth infection, namely bacteria that enter through the tooth cavity can spread to the tissue around the tooth root and cause periapical abscess, trauma where injury to the teeth or jaw, such as a broken tooth or trauma due to an accident, can be a pathway for bacteria to enter and cause an abscess, periodontal disease such as severe gum infection (periodontitis) can spread to the jawbone and cause a periodontal abscess, unsterile dental procedures, a weak immune system, chronic diseases, and sinus infections such as chronic sinusitis or other sinus infections can spread to the maxillary bone and cause a maxillary abscess (Dewi and Sucipta, 2017). Risk factors for left maxillary abscess can be obtained from poor oral hygiene, dental and gum disease, conditions such as dental caries (cavities) and periodontitis (gum infection) are major risk factors, history of trauma to the teeth or jaw, unsterile dental procedures, a weakened immune system, smoking habits, excessive alcohol consumption, chronic medical conditions, chronic sinus infections, and lack of access to dental care (FDI World Dental Federation, 2017). In this patient, complaints of cavities (+) were found in the upper right molar since 2 years ago and pain (+) in the lower right molar and upper left molar, a history of left maxillary surgery at Dr. Moewardi Hospital (RSDM) in 2022 and maxillary ROI surgery in 2023 at PKU Karanganyar and smoking (+), where these three things are in accordance with the theory regarding risk factors and etiology of maxillary abscess which then developed into a pathophysiological pathway for the occurrence of maxillary abscess.

According to the literature, symptoms that appear in maxillary abscess include severe pain, local pain that can be reproduced by palpation, poor dental hygiene, unrepaired dental trauma, facial erythema, trismus, dysphagia, fever, lymphadenopathy, and on oral examination, teeth suspected of containing infection may be discolored, have visual damage to the enamel, or be surrounded by gingival erythema and swelling. Signs such as changes in mental status and dyspnea should be of particular concern. Complaints that cause patients to come to the hospital are usually due to swelling and pain in the left cheek, heat, swelling, and difficulty opening the mouth. From previous history, 80% of maxillary abscess patients have experienced dental infections. In the anamnesis, questions can be asked about whether there is a history of trauma to the facial area, previous dental or sinus infections, a history of chronic diseases such as diabetes or other immunocompromised conditions, whether there is pain in the facial area, especially around the upper jaw (maxilla), swelling of the face, especially in the area around the upper jaw, redness of the skin in the

swollen area, increased pain when pressing the swollen area, fever and general malaise (feeling unwell), difficulty opening the mouth or chewing, pus coming out of the infected area (abscess) (Yuliati, 2005). This patient came to the ENT polyclinic with the main complaint of pain and swelling of the left cheek, accompanied by difficulty opening the mouth due to limited pain, which is in accordance with the literature that complaints that cause patients to come to the hospital are usually due to swelling and pain in the left cheek, heat, swelling, and difficulty opening the mouth (Yuliati, 2005). Other complaints such as colds and nasal congestion also support the patient's symptoms.

The diagnosis in this case is established through anamnesis and physical examination aimed at obtaining information about the disease suffered so as to lead to the correct diagnosis, can eliminate differential diagnoses, and can determine the correct management of the disease. Physical examination in this case obtained, from anterior rhinoscopy found the nose appeared hyperemic (+/+), secretion (+/+), hypertrophy of the concha (+/+), deformity -/-. On palpation found nasal tenderness (-) and maxillary sinus pain (-). On facial inspection found swollen left cheek (+), on palpation there was a lump that was mobile (+) and not painful. Some conditions of the patient, such as a lump felt on the left cheek palpation that was mobile and swollen cheek, in accordance with the literature stating that the diagnosis of patients with maxillary abscess is mainly done through clinical examination. Generally patients experience an increase in palpable volume during palpation in the maxillary area. Pus appears to collect in the maxillary area, this condition can cause infections such as high fever, malaise, tachycardia, and chills (Yuliati, 2005). In patients, secretions and hypertrophy of the conchae are also found in accordance with the condition of patients with a history of previous sinus surgery. (Figure 1)

Figure 1a. (Ostium of maxillary sinus)

Figure 1b. (Media antrostomy performed using the Bacn Bitter tool)

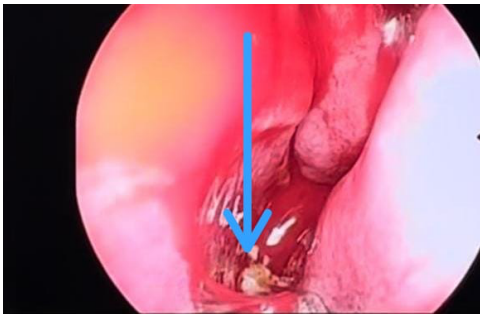


Figure 1c. (Fungal Ball Found)

Figure 1d. (Yellow: mucosa of maxillary sinus fron calf well luc view)

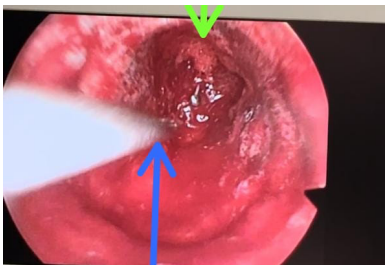
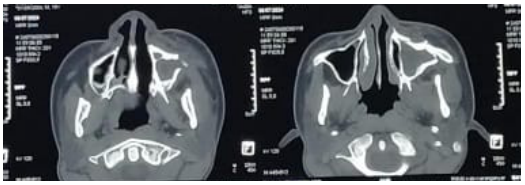
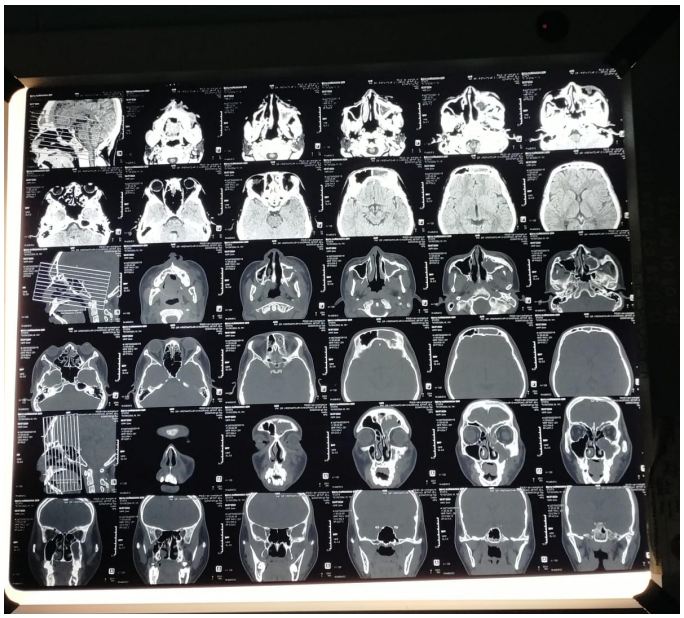


Figure 1e. (Green Arrow: Ostium seeks from nasal cavity; Blue Arrow: Nasal suction forms cald well luc access)

Supporting examinations in this case are CT-Scan and histopathology. In this case, the results of the Paranasal Sinus CT scan were thickened mucosa in the maxillary sinus with lucent air bubbles in it that appeared to spread to the left ethmoid sinus, left frontal sinus and part of the left nasal cavity (sinusitis picture), still possible with an abscess in it with a differential diagnosis of left sinonasal mass, and right maxillary sinusitis. The results of the histopathology examination of small tissue concluded chronic sinusitis in the left maxilla. Imaging is one of the supporting examination modalities for maxillary abscess, so that a CT scan on the patient helps the examiner determine more appropriate therapy. (Figure 2).





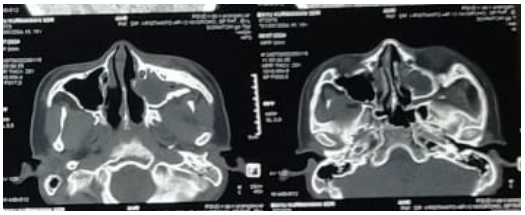


Figure 2a.

Thickening of the mucosa in the maxillary sinus with air bubble lucency in it which appears to spread to the left ethmoid sinus, left frontal sinus and part of the left nasal cavity, there may still be an image of an abscess.
Right maxillary sinusitis

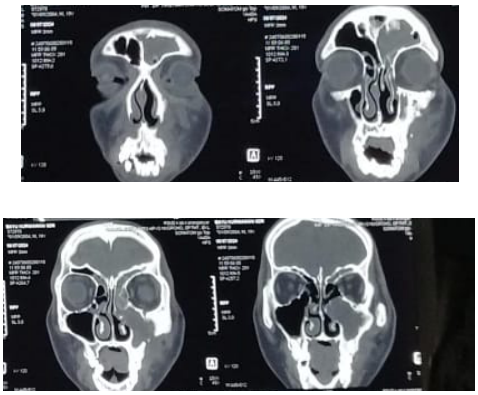


Figure 2b. Right maxillary sinusitis

Thickening of the mucosa in the maxillary sinus with air bubble lucency in it which appears to spread to the left ethmoid sinus, left frontal sinus and part of the left nasal cavity, there may still be an image of an abscess.

Management of this patient is administration of RL fluid 20 tpm, Ceftriaxone Injection 1gr/12 hours, Metronidazole Infusion/8 hours, Santagesic Injection 1 amp/8 hours, Methylprednisolone Injection 12.5 mg/12 hours, Ranitidine Injection 1 amp/12 hours. According to theory, one of the pillars of maxillary abscess therapy is medication, so it is necessary to give the right and adequate antibiotics to relieve the infection. Effective antibiotics are penicillin, erythromycin, clindamycin, cefadroxil, metronidazole, tetracycline. If there is a suspected causative germ that is resistant to penicillin, or the presence of opportunistic or anaerobic germs, then it is necessary to consider the use of non-penicillin antibiotics. For surgical procedures and dental care are not performed on patients and can be a consideration and education for the patient (Sumeja, 2017). Other therapies can be given as symptomatic therapy, such as administration of santagesics for pain, ranitidine for gastric protection, and methylprednisolone for inflammation.

Conclusion

In this case, a 19-year-old male patient came with a chief complaint of pain and swelling of the left cheek since 2 months ago. The patient also complained of a runny nose and both noses were blocked. Complaints were accompanied by a cavity in the upper right molar since 2 years ago and pain in the lower right molar and upper left molar. The patient admitted a history of maxillary left surgery at Dr. Moewardi Hospital (RSDM) in 2022 and maxillary ROI surgery in 2023 at PKU Karanganyar and smoking (+). Common clinical symptoms of maxillary abscess include severe pain, local pain that can be reproduced by palpation, poor dental hygiene, unrepaired dental trauma, facial erythema, trismus, dysphagia, fever, and lymphadenopathy.

The diagnosis is made through anamnesis, physical examination, rhinoscopy, and supporting examinations such as CT-Scan, which show that there may be left sinusitis and right maxillary sinusitis. The results of histopathological examination of small tissues concluded that there was chronic sinusitis in the left maxilla. Management is carried out with drug therapy with antibiotics ceftriaxone and metronidazole and symptomatic therapy with santagesic,

methylprednisolone, and ranitidine. Further research and development of better prevention methods are needed to improve the prognosis of patients with maxillary abscess.

Conflict of Interest

Maxillary abscess: the incidence of recurrent maxillary abscesses after maxillofacial trauma surgery. Because the lateral wall of the nose/medial sinus experiences occlusion, the canal closes. Then, if you are treating cases of maxillofacial trauma, you must first look at the condition of the lateral wall of the nose/medial sinus.

Consent Form

"Good morning, I'm [Doctor X], and I will explain the procedure we will perform to treat an abscess on your upper jaw. A maxillary abscess is an infection that results in a buildup of pus around the teeth or maxillary sinus, which can cause pain, swelling, and other symptoms.

The procedure we recommend is [specify procedure, for example abscess drainage, root canal treatment, or tooth extraction], which aims to drain pus and reduce infection. This action will also help relieve symptoms such as pain and swelling, and prevent the infection from spreading to surrounding tissue.

Some risks that may occur during this procedure include: Infection that may persist despite drainage.

Excessive bleeding.

Damage to the tissue around the abscess, such as teeth or bone.

Reaction to the anesthetic or antibiotic used.

However, this procedure has considerable benefits, such as reducing pain, stopping the spread of infection, and improving the condition of the tooth or tissue around the abscess.

I want to make sure you understand all the information regarding this procedure. If you have any questions or concerns, please ask, and I will try to explain further.

Do you agree to continue with this procedure? If yes, you can provide consent by signing the form we have prepared or giving verbal consent."

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