

Case Report

Abdominal Actinomycosis: Case Report

Antonija Verhaz^{1,2*}¹Clinic for Infectious Diseases, University Clinical Centre of the Republic of Srpska, Banja Luka, the Republic of Srpska, Bosnia and Herzegovina²Department for Infectious Diseases, Faculty of Medicine, University of Banja Luka, Banja Luka, the Republic of Srpska, Bosnia and Herzegovina***Corresponding author: Antonija Verhaz**

Clinic for Infectious Diseases, University Clinical Centre of the Republic of Srpska, Banja Luka, the Republic of Srpska, Bosnia and Herzegovina.

Tel: 065 649 350

Email: antonija@blic.net

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Introduction

Actinomycosis is a chronic, progressive granulomatous disease that is prone to the formation of single or numerous drainage sinuses or fistulas. It is caused by *Actinomyces israelii* and related anaerobic filamentous bacteria, which are found in the oral cavity, gastrointestinal and urogenital tracts of humans. Actinomycosis can appear in almost all organs and organ systems, that is, actinomycetes show pathogenicity in all tissues of the human body, but the diagnosis of this disease is rare [1,2]. The most common localization of actinomycosis is the head and neck, thorax, and then the abdomen, while localization in the pelvis, localization in the central nervous system, and disseminated forms preceded by states of marked immunodeficiency are very rare [3,4].

All conditions that cause immune insufficiency (use of glucocorticoids, malignant hemopathy, immunosuppressive therapy, HIV infection or organ transplantation) are prerequisites for the occurrence of actinomycosis, but it also occurs in the state of immune insufficiency. Actinomycetes are anaerobes, gram-positive microorganisms, permanent residents of the oral cavity, gastrointestinal and urogenital tract, that is, humans are the reservoir and source of infection with this microorganism, which means that it is an endogenous infection [1,5]. They are very sensitive to many antibiotics, but completely insensitive to antifungals. In addition to the 4 species of actinomycetes that were long considered the only confirmed pathogens for humans (*A.*

Abstract

Abdominal actinomycosis remains an uncommon condition that mimics a wide range of intra-abdominal conditions ranging from acute inflammatory pathologies such as appendicitis to colonic or gynecological malignancies. Any abdominal organ can be affected. Preoperative diagnosis is often difficult and radiological imaging is unlikely to provide a definitive diagnosis. Surgical resection is often required in combination with long-term high-dose antibiotic therapy.

Keywords: Abdominal actinomycosis; Diagnosis; Treatment

israelii, *A. naeslundii*, *A. viscosus*, *A. odontolyticus*), today pathogenicity for humans has been proven for *A. pyogenes*, *A. bernardiae*, *A. europaeus*, *A. neuii*, *A. turicensis*, *A. graevenitzii*, *A. radingae*, *A. Funkei*) [1-3]. The disease occurs at all ages, most often from 10 to 60 years of age. There is no human transmission.

The basic prerequisite for the occurrence of infection is the impaired tissue integrity that occurs in the process of teeth and gums, in trauma to the soft tissues and bones of the oral cavity and face, surgical procedures in the oral cavity, the existence of an ulcerative lesion in the oral cavity (herpes simplex, cytomegalovirus etiology), the existence of foreign body (osteosynthesis, prosthetic works). When invading tissues, actinomycetes are usually associated with other bacteria, i.e. the infection is polymicrobial. On the lungs, actinomycosis most often develops as a result of aspiration of the causative agent from the upper respiratory tract or after hematogenous dissemination. In the case of abdominal localization, the pathogenetic prerequisite is most often appendicitis, diverticulitis, foreign bodies in the intestinal tract, surgical procedures. Histologically, an actinomycete lesion is characterized by a granulation zone, made up of collagen fibers and fibroblasts, a purulent zone made up of neutrophils and granules or drusen, and made of conglomerates of actinomycetes, while the outer zone contains plasma cells, lymphocytes, eosinophils or multinuclear cells [1-4].

The symptomatology of actinomycosis is general and local. General implies the symptomatology of a general infectious syndrome, and local signs are related to the affected organ or its proximity to the pathological process and represent leading symptoms. Clinically, the cervicofacial form manifests itself as a painful, hard swelling, which gradually grows and eventually opens fistulas that drain pus from the depths to the surface. In the pulmonary form, the clinical picture resembles pulmonary tuberculosis. Chest pain, fever and productive cough. Perforation of the chest wall with chronic secreting fistulas may occur. X-ray of the lungs shows infiltrative changes that spread bilaterally from the hilus towards the bases, i.e. lung abscesses. Pleural empyema can be a complication of further spread of infection. The infection can penetrate through the diaphragm into the abdominal cavity, which leads to the formation of an abscess in the liver.

In the abdominal form, the intestines (usually the cecum and appendix) and the peritoneum are affected. Symptoms such as pain, fever, vomiting, diarrhea or constipation and weight loss are present. One or more abdominal masses appear, along with signs of partial bowel obstruction. Sinuses and fistulas can develop and extend to the outer abdominal wall. The local pelvic form of actinomycosis in women can be a complication of certain types of intrauterine contraceptives. Vaginal discharge with pain in the pelvis or lower abdomen [6,7].

In the generalized form, the infection spreads hematogenously to the skin, spine, brain, liver, kidney, ureter, and, in women, to the pelvic organs. Actinomycosis is one of the most unrecognizable diseases. The reasons are the sensitivity of actinomycetes to many antibiotics that are widely used, diagnostic difficulties reflected in inadequate collection and referral of samples for diagnostics, actinomycetes being an endogenous microorganism, so its isolation does not necessarily confirm the diagnosis, a large number of clinical pictures.

The diagnosis of actinomycosis is microbiological and/or histological. Microbiological diagnosis; it is necessary to send samples for cultivation in anaerobic conditions (material obtained by biopsy, taking sputum by washing the bronchi, swab of the cervix). Histological findings - pathognomonic findings are granules or drusen, which represent conglomerates of microorganisms, which are formed only in vivo, and are not formed by artificial cultivation on substrates [3,4].

Differential diagnosis of localizations on internal organs first refers to different types of tumors (malignant and benign), systemic diseases for differential diagnosis include tuberculosis, nocardiosis, blastomycosis and cryptococcosis.

There are two important principles in the antibiotic therapy of actinomycosis, the use of high doses of antibiotics, usually parenterally for the first 2-6 weeks, then continued orally. Duration of antibiotic use, which means use from 6 to 12 months. High-dose penicillin G (18-20 million IU) is usually given for 2-6 weeks and then can be switched to oral penicillin V (1 gram 4 times a day). Actinomycetes show sensitivity to macrolides, tetracyclines, clindamycin, and ceftriaxone, imipenem and quinolone preparations can also be used. Surgical treatment is an integral part of treatment: small abscesses can be aspirated, large ones drained, and fistulas can be surgically excised. Hyperbaric oxygen therapy may be beneficial [4-6].

Actinomycosis is a disease that is rarely diagnosed, and the prerequisite for diagnosis is knowledge of the nature of this

disease and the constant presence of suspicion when there is no evidence for another etiology. Timely microbiological and histological diagnostics will create preconditions for timely and optimal treatment of this disease [7].

Case Presentation

Patient, 48 years old from Šipovo, worker. The disease began in October 2005 with complaints: pain in the left half of the abdomen, constipation, stool as thin as a pencil, general weakness. Examined by an internist at the family doctor's clinic. During the examination, the doctor palpates the tumor formation in the area of the descending colon and sets an indication for recto-sigmoidoscopy. An ultrasound examination of the abdomen and kidneys was performed, the findings were normal. Gynecological examination, findings are normal. After a few days, an abdominal surgeon was consulted, who performed a rectosigmoidoscopy (endoscopic findings were normal, no biopsy was performed). Recommended hospitalization in the Clinic for Abdominal Surgery of the Clinical Center of Banja Luka, where the patient was admitted on December 19, 2005. Upon admission, a colonoscopy was performed, an infiltrative change in the area of the left colon was suspected, and the operation was performed on December 26, 2005. The findings after the operation speak in favor; Hemicolectomy lat.sin. Transverso-recto anastomosis T-T, appendectomy. Extended lymphadenectomy. Drainage.

The postoperative course went well, she was discharged from the hospital on January 5, 2006. A sample of intestinal tissue was taken by biopsy and sent for pathohistological examination, the findings were submitted on January 6, 2006. and speaks in favor of actinomycosis. Described pathohistological finding; the change corresponds to a purulent abscess inflammation (caused by actinomycosis), which probably originated primarily in the genital tract (uterus, ovary) with subsequent involvement of the intestinal wall.

After consultation examinations, the patient was admitted to the Clinic for Infectious Diseases on April 13, 2006. On admission, he complains only of occasional pain in the lower left quadrant of the abdomen. Afebrile, in good general condition. Correct physical findings by systems. All laboratory findings were within reference limits. Radiologically, the lungs and heart are found, the findings are normal. Computed tomography (CT) of the abdomen and pelvis, intra-abdominally along the abdominal wall on the left, shows a slight thickening in direct contact with the intestinal coils, possible adhesions as a result of the operation, the remaining findings are within physiological limits. Tumor markers (CA 19.9, CEA, AFP, CA 72-4, Cyfra, NSE) within reference values.

A gynecological finding speaks in favor of adnexitis. hr. Gynecological ultrasound findings, right next to the uterus and behind the bilocular cyst 48.7x24.2 mm with normal remaining findings.

Coprocultures did not isolate pathogenic intestinal bacteria or anaerobic bacteria. Stool for parasites and protozoa negative. CT colonography: shows the condition after left hemicolectomy, other findings are within physiological limits. After admission, penicillin G was included in a daily dose of 20 million IU parenterally for 2 weeks. After that, the therapy continues with doxycycline in a daily dose of 200 mg.

The patient will be on antibiotic therapy for the next 6 months, so far without signs of disease recurrence. Control labora-

tory and biochemical findings within reference values. Control CT scan of the abdomen, slightly dextroverted uterus with cystically changed and enlarged left adnexa. Other findings are in order. X-ray of the left hip: discretely reduced mineralization of bone structures, orderly relation of the articular bodies is shown. Discreet narrowing of the coxofemoral joint in the lateral part, by subchondral sclerosis.

The patient comes for periodic check-ups, the last one in February 2023, without complaints, without signs of disease recurrence.

Discussion

Human actinomycele infection usually affects three areas. Most (>50%) are cervicofacial and are associated with poor oral hygiene and dentition. It can occur as a complication of tooth extraction. Thoracic actinomycosis accounts for 15-20% of cases and may present as diffuse pulmonary infiltration or a discrete mass mimicking bronchial carcinoma. Abdominal actinomycosis accounts for approximately 20% of cases [1,2]. The rest are sporadic cases involving diffuse organs such as the brain, salivary glands and vertebrae or occasionally systemic disease. Computed tomography is the most useful diagnostic method. The presentation of abdominal actinomycosis is usually a multicystic lesion with contrast, as found in our patient. The pathologist's findings confirm the diagnosis [7]. Long-term medical treatment seems to be very successful. The difficulty lies in making a final diagnosis.

Conclusion

Abdominal actinomycosis has been known for over 150 years, but remains largely unknown to most clinicians. Its various presentations are usually considered a malignant tumor rather than an infectious process - and it was once described as "the most commonly misdiagnosed disease".

References

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