Renal actinomycosis – case report

The case description concerns a 49-year-old man hospitalized because of a suspicion of neoplastic disease. A tumor of the right kidney was diagnosed on the basis of results of additional examinations. The results of imaging did not indicate a clear cell carcinoma. Due to the data from the anamnesis and additional examinations that suggested a neoplastic disease a nephrectomy has been decided. A kidney actinomycosis was stated in the result of histopathological examination. Actinomycosis is a bacterial disease and may occur in the genitourinary system, causing diagnostic and therapeutic difficulties. Histopathological examination is decisive in the diagnostic process. The analysis of literature indicates the possibility of using conservative treatment in selected cases based on kidney biopsy.

Introduction
Kidney tumors are a nonhomogenous nosological group and include malignant, mild and inflammatory lesions [1]. Computerized tomography (CT) still remains the standard procedure of kidney tumor diagnostics. Kidney tumors that become enhanced by 15 or more Hounsfield units on CT examinations after administration of contrast medium are defined as suspected of neoplastic transformation. Renal cell carcinoma is the predominant malignant neoplasm of kidney, however, the kidney may also be a target organ of rare neoplasms, such as, for example, lymphomas or sarcomas. In case of rare neoplasms of kidneys, the results of imaging cause diagnostic difficulties due to the similarity to mild lesions (e.g. oncocytoma, actinomycosis). Actinomycosis is a bacterial disease caused by saprophytic microorganisms of the genus Actinomyces. These bacteria are Gram-positive anaerobic microorganisms that are saprophytes of the alimentary tract.

Case report
The 49-year-old patient (b. R.) has been admitted to the Department of Urology Provincial Hospital, Łomża, Poland because of a suspicion of a tumor of the right kidney. In the anamnesis: a worsening of exercise tolerance, febrile states, a loss of body mass of 23 kg in 4 months, night sweats, a nicotine habit of 130 pack years. Concomitant diseases: COPD (chronic obstructive pulmonary disease). Numerous tattoos were stated in the result of histopathological examination. A kidney actinomycosis was diagnosed on the basis of results of additional examinations after administration of contrast medium. A CT examination of the abdominal cavity caused a suspicion of a tumor of the right kidney measuring 35 x 40 mm. A CT examination of the thorax and bronchiectases and changes typical for COPD were diagnosed. Continuing the diagnostic examinations of the focal lesion for CoPD were diagnosed. Continuing the diagnostic examinations of the focal lesion for CoPD were diagnosed. Continuing the diagnostic examinations of the focal lesion for CoPD were diagnosed.

The results of additional tests showed: WBC-12 G/l, CRP-1.0 mg/dl, HCT-43%, HGB-13.9 g/dl, RBC-4.66 T/l, Creatinine-0.9 mg/dl and a sterile urine culture. Chest X-ray: tuberously widened pulmonary hill (apart from that, there were no other abnormalities). The result of a performed ultrasonography of the abdominal cavity caused a suspicion of a tumor of the right kidney measuring 35 x 40 mm. A CT examination of the thorax and bronchiectases and changes typical for COPD were diagnosed. Continuing the diagnostic examinations of the focal lesion for CoPD were diagnosed. Continuing the diagnostic examinations of the focal lesion for CoPD were diagnosed. Continuing the diagnostic examinations of the focal lesion for CoPD were diagnosed. Continuing the diagnostic examinations of the focal lesion for CoPD were diagnosed. Continuing the diagnostic examinations of the focal lesion for CoPD were diagnosed.

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A short part of the tumor reached the liver capsule and the fascia of the posterior abdominal wall. An infiltration of the liver capsule cannot be clearly excluded.

Due to the anamnoses and results of imaging that suggested the presence of a lesion of neoplastic nature a nephrectomy has been decided. The surgical procedure of kidney resection was typically performed through lumbotomy by removing the kidney with the tumor. The preparation was made difficult by the inflammatory infiltrations surrounding the kidney. The following was stated in the result of the histopathological examination: partially ascending and xanthogranulomatous purulent pyelonephritis. Numerous colonies of Actinomyces are present within the lesion.

During the postoperative course a delayed healing of the wound with a purulent discharge from the canal after removal of a drain, which after the use of cefuroxime gradually disappeared, was observed.

Discussion

Actinomycosis is a disease caused by Gram-positive anaerobic bacteria of the genus Actinomyces. These microorganisms are saprophytes and reside in the oral cavity, alimentary tract in persons of both sexes and in genital tracts of healthy women [2]. An impairment of natural immune defences of the organism, broadly, is a factor predisposing to invasive disease caused by saprophytic bacteria [3-5]. Actinomycosis is most often located in the organs of the head and neck [2,6]. Valour et al. demonstrated that the genitourinary system is the second most common location of the disease [7]. It should be noted that cases of this disease located in the reproductive system in women using Intra Uterine Devices predominate among cases of actinomycosis of genitourinary system found in the literature [8]. Cases of kidney actinomycosis described in the literature take one of the following four forms: renal abscess, kidney tumor, acute pyelonephritis or pyonephrosis [9]. Authors of kidney actinomycosis case reports indicate that a loss of body mass, subfebrile states or night sweats are the abnormalities, which are often found in anamneses [10,11]. Lesions with a morphology of solid tumors and contrast enhancement or lesions with a cyst-like appearance and observed wall enhancement are found on CT examinations [10]. Changes with
a similar signal on T1-weighted and T2-weighted MR images were described [10]. The inconclusive clinical picture indicated above and non-characteristic morphology observed on imaging imply a differential diagnosis of disease entities such as: renal abscesses, lesions of specific nature (tuberculosis), malignant (clear-cell carcinoma or lymphomas) or benign (oncocytoma) neoplastic diseases. The analysis of available case descriptions indicates that histopathological examination is the conclusive factor in case of kidney actinomycosis. A granulomatous inflammation with the presence of the so-called xanthoma-like grains is a characteristic picture observed on microscopic examination. Due to the mentioned above diagnostic difficulties most of the authors of reports concerning kidney actinomycosis have applied a nephrectomy as a surgical procedure that has both a diagnostic and therapeutic value. Khalaff et al. stated that a nephrectomy can be avoided by performing a kidney biopsy. However, it is necessary to specify that the authors of this report have performed several kidney biopsies, whereas the intraoperative biopsy has been decisive. Moreover, the treatment was based on a long-term therapy with β-lactam antibiotics [9].

**Conclusions**

Kidney actinomycosis is a rarely occurring disease. The clinical picture and available additional testing do not allow an easy differential diagnosis of proliferative diseases, whereas according to most of the reports a nephrectomy was used as the only method of treatment. The analysis of literature indicates that in selected non-advanced cases it is possible to spare the organ by performing a kidney biopsy that is followed by antibiotic therapy.

**References**