



Journal Homepage: - [www.journalijar.com](http://www.journalijar.com)

## INTERNATIONAL JOURNAL OF ADVANCED RESEARCH (IJAR)

Article DOI: 10.21474/IJAR01/14187

DOI URL: <http://dx.doi.org/10.21474/IJAR01/14187>



### RESEARCH ARTICLE

#### ACTINOMYCOSIS OF THE SPINE AND ABDOMINOPELVIAN: CASE REPORT

Yvonne Komba Boussaga<sup>1</sup>, Griche Aissam<sup>2</sup>, Rabab Ghalmi<sup>1</sup>, Félicité Niafam Etoughe<sup>1</sup>, Habone Elmi Hassan<sup>1</sup>  
Fatima Ihibbane<sup>1</sup>, Said Ait Benali<sup>2</sup> and Noura Tassi<sup>1</sup>

1. Département Infectious Diseases Department, Mohammed VI University Hospital Cadi Ayyad University Marrakech 40080 Amerchich Maroc.
2. Département Neurosurgery Department, Mohammed VI University Hospital Cadi Ayyad University Marrakech 40080 Amerchich Maroc.

#### Manuscript Info

##### Manuscript History

Received: 05 December 2021

Final Accepted: 09 January 2022

Published: February 2022

##### Key words:-

Actinomycosis, Hepatic Abscess,  
Ovarian Abscess, Spondylodiscitis

#### Abstract

Actinomycosis is a very rare disease caused by *Actinomyces israelii*, a saprophytic bacterium of the oropharynx and genital tract of women. Its diagnosis is made difficult by the lack of clinical and radiological specificity. We report three cases of patients with actinomycosis of various locations, but with similar management. These cases recall the radio-clinical and therapeutic aspects of this rare infection. They underline the necessity of a microbiological diagnosis for any surgical specimen and the major importance of the histological study in the diagnosis of this condition.

Copy Right, IJAR, 2022,. All rights reserved.

#### Introduction:-

Actinomycoses are rare infections that occur at any age and regardless of immune status. They are caused by *Actinomyces*, a strict anaerobic spore-forming and filamentous bacterium, saprophytic of the mucous membranes of the oropharynx, the tracheobronchial tree of the intestine and the female genital tract (1). The majority of human infections are due to *Actinomyces israelii*. Its diagnosis is made difficult by the lack of clinical and radiological specificity. It is therefore often discovered at an advanced stage. The diagnosis is based on microbiology or more often on histological analysis of the surgical specimen. The reference treatment is penicillin G and the prognosis is generally favorable. We report three observations of patients with actinomycosis with different localizations in order to underline the necessity of microbiological diagnosis and the major importance of histological study for the diagnosis of this condition.

#### Observations:-

Two men and one woman, average age 40 years (29-59 years). Both men had a very poor oral status and the woman had been wearing an intrauterine device for 15 years. The mode of onset was insidious in all cases. The mean time to diagnosis was 10 months (2-4 months). Fever was present in one case, alteration of the general state, local inflammatory signs in the 3 cases. The first patient had chronic low back pain associated with flaccid paralysis of the lower limbs, a sensory level at D4 and abolition of osteotendinous reflexes. The second patient presented with chronic right flank pain, a distended abdomen with painful hepatomegaly (liver arrow at 25 cm). The third patient presented a chronic and painful right pelvic swelling. All the clinical pictures are summarized in the attached table.

The diagnoses evoked preoperatively were a tumor process and tuberculosis in all three cases. In the first patient, with vertebral involvement, CT and MRI showed a staged osteolysis from D2 to D5 with anterior perivertebral and

**Corresponding Author:- Yvonne Komba Boussaga**

Address:- Doctor at the Infectious Diseases Department BP: 2360 Avenue Ibn Sina  
Amerchich, Marrakech.

epidural collections compressing the foramina and the medullary cord, engaging the functional prognosis of the patient (Iconography 1). In addition, he presented a lesion of the dorsal segment of the right lung, associated with pulmonary nodules. The abdominal CT in the second patient showed a large multiloculated lesion of segments IV, VII and VIII corresponding to an abscess, associated with other cystic lesions of segments VII and VIII (Iconography 2). The abdomino-pelvic CT scan of the third patient showed a supra- and latero-uterine tissue mass of ovarian appearance with a large amount of ascites. Hyperleukocytosis (leukocytes  $>10000/\text{mm}^3$ ) and elevated CRP ( $>20 \text{ mg/L}$ ) were noted in all three cases. The rest of the biological work-up was unremarkable (Table).

All three patients had undergone surgical resection of the lesions for diagnostic and therapeutic purposes. Microbiological analysis of the surgical specimens did not reveal any germs. The search for tuberculosis by PCR, microscopy and culture was negative. The diagnosis of actinomycosis was confirmed by histological examination of the surgical specimens in all three cases. The histological examination revealed necrotizing lesions associated with palisading filaments and yellowish granules, making the diagnosis of actinomycosis. This examination also made it possible to rule out a neoplastic cause. Penicillin G at a dose of 20 million units/day for 6 weeks was instituted in two cases. The third patient was treated with Piperacillin-tazobactam (12g/day) for 6 weeks, due to lack of penicillin G. The oral relay was based on amoxicillin (4g/day) in all three cases. The total duration of antibiotic therapy was 6 months. The evolution was favorable in all cases. None of the patients presented a recurrence at the M6 and M18 post-treatment control CT scan. Nevertheless, we noted the persistence of paraplegia in the patient who had vertebral destruction with spinal cord involvement.

### Discussion:-

*Actinomyces israelii* is the most frequently encountered species in humans. It is found in saliva (29% of cases) or in gingival crevices (52%) (1). The classic forms are cervico-facial (55-60%). Bone involvement accounts for 15% of actinomycosis cases, and vertebral involvement is exceptional (2,3). Abdominal and pelvic forms account for 10 to 20% of cases (4). The delay in diagnosis is often very long, resulting in high morbidity, even though *Actinomyces* is very sensitive to antibiotics (5,6).

Risk factors associated with this infection include poor oral status, the presence of an intrauterine device and chronic alcoholism (3,5,6). Pulmonary actinomycosis results from inhalation of secretions containing bacteria. These bacteria cross the mucous membrane through a lesion following a surgical or traumatic stress or a chronic inflammatory disease (7). Thoracic involvement is secondary to a descending bronchial or mediastinal infection. Hematogenous diffusion, although rare, accounts for hepatic localization via the portal route in abdominal actinomycosis (7). In pelvic involvement, the bacteria cross the mucous membranes through lesions caused by the intrauterine device. In all cases, regional dissemination occurs by contiguity, without respecting natural anatomical barriers, due to the proteolytic activity of the bacteria. Whatever the location, the clinical picture is that of a tumor syndrome associated with chronic inflammatory pain, a profound alteration of the general state and an inconstant fever, simulating tuberculosis or cancer. Fistulization of the wall is also possible.

The difficulty of the diagnosis lies in the possible normality of the biological workup and the lack of specificity of the imaging, which shows a tumor mass of heterogeneous appearance (8). On CT, pulmonary actinomycosis is characterized by a pulmonary condensation syndrome of the lower lobe, sometimes multifocal (6,9). But rarely, this condensation may appear nodular, as described in the first patient. It may also form a cavitation or an abscess (10). CT scan of the spine reveals lytic bone lesions involving the vertebral pedicles, transverse processes and vertebral bodies with most often respect of the intervertebral disc (2). On MRI, epidural abscesses appear isointense on T1-weighted sequences and hyperintense on T2-weighted sequences. In the abdominopelvic region, CT most often shows a solid or cystic tumor mass with a thick wall, multilobular or not, frequently suggesting a neoplastic process (4). The slow growth of *Actinomyces* and their high sensitivity to aerobic environment and antibiotics makes their isolation difficult (7). The histological appearance of palisading filaments and granules within the poorly vascularized actinomyces follicle, with intense fibrosis, is characteristic and allows the diagnosis to be made (5).

Medical treatment is based on antibiotic therapy with high-dose penicillin G (2,3). In case of allergy, macrolides, synergistines, clindamycin, piperacillin-tazobactam or cyclins can be used. Treatment should be prolonged for 6 to 12 months. Penicillin G at a dose of 10 to 20 million international units intravenously for 4 to 6 weeks or amoxicillin 6 to 12g IV slow for 2 to 6 weeks followed by oral amoxicillin 3 to 4g/24h in three doses (2). The prognosis of this condition is generally favorable provided that the diagnosis is rapid.

**Conclusion:-**

Actinomycosis is a very rare and serious bacterial infection. It is due to *Actinomyces israelii*. A fragility of the mucous membranes allows the passage of the bacterium and the visceral invasion. The microbiological diagnosis of this condition is difficult, and is more often made by histology. The treatment is medical-surgical and the evolution is generally favorable. The prognosis of this disease is generally good after a well conducted and prolonged treatment.

**Conflicts of interest**

The authors declare no conflicts of interest.

**Contributions of the authors**

- Yvonne Komba Boussaga: Conception and drafting of the manuscript.
- Rabab Ghalmi, Félicité Nifam Etoughe, Habone Elmi Hassan, Said Ait Benali and Grice Aissam: Proofreading of the manuscript and revising it critically.
- Fatima Ihibbane and NouraTassi: Correction of the manuscript and Final approval of the version to be published.

**Tables and figures**

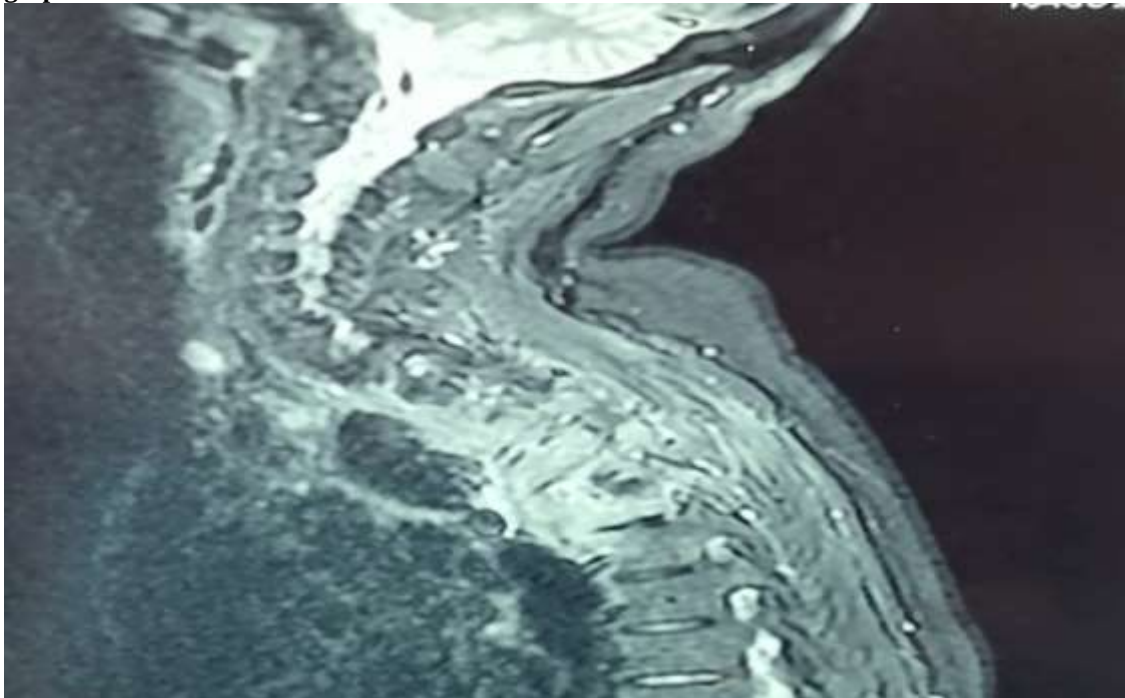
Table: Summary of clinical, biological and radiological characteristics of the three patients.

Iconography 1: Spinal cord MRI, sagittal section. First patient.

Caption: Vertebral involvement from D2 to D5 with peri-vertebral and anterior epidural masses compressing the foramen and the spinal cord, suggesting secondary localizations.

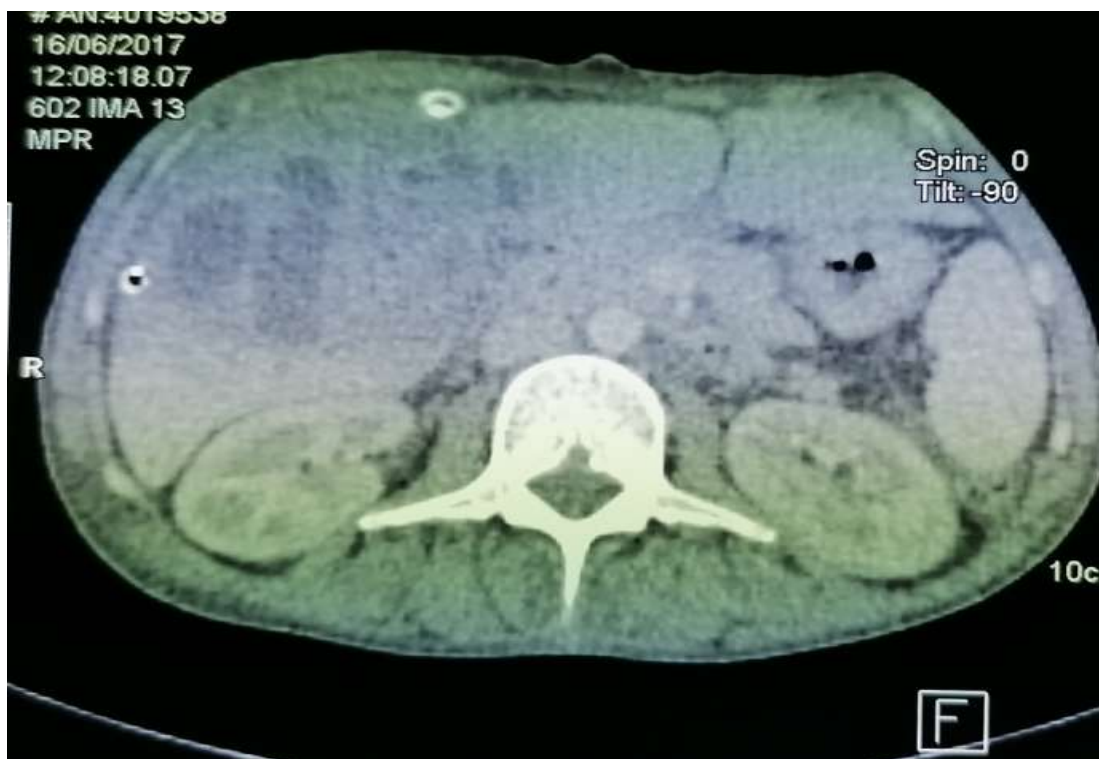
Iconography 2: Abdominal CT scan, axial section. Second patient.

Caption: Enlarged liver (liver arrow: 25.2 cm). Voluminous multiloculated lesion located astride hepatic segments IV, V, VI and VIII, liquid, well limited measuring 9 x 14.6 x 18.3 cm, associated with other cystic lesions of segments VI and VIII.

**Iconographies**

**Iconography 1:-** Spinal cord MRI, sagittal section. First patient.

**Caption:** Vertebral involvement from D2 to D5 with peri-vertebral and anterior epidural masses compressing the foramen and the spinal cord, suggesting secondary localizations.



**Iconography 2:-** Abdominal CT scan, axial section. Second patient.

**Caption:** Enlarged liver (liver arrow: 25.2 cm). Voluminous multiloculated lesion located astride hepatic segments IV, V, VI and VIII, liquid, well limited measuring 9 x 14.6 x 18.3 cm, associated with other cystic lesions of segments VI and VIII.

**Table:-** Summary of clinical, biological and radiological characteristics of the three patients.

|                                                          | Patient 1                                                                                             | Patient 2                                           | Patient3                                    |
|----------------------------------------------------------|-------------------------------------------------------------------------------------------------------|-----------------------------------------------------|---------------------------------------------|
| Epidemiological and clinical characteristics of patients |                                                                                                       |                                                     |                                             |
| Age (years)                                              | 49                                                                                                    | 23                                                  | 50                                          |
| Sex                                                      | Male                                                                                                  | Male                                                | Femmal                                      |
| Terrain                                                  | Dental caries                                                                                         | Dental caries                                       | Intrauterine device                         |
| Functional signs                                         | Chronic low back pain<br>Paraplegia                                                                   | Chronic right<br>hypocondrial pain                  | Chronic pelvic pain                         |
| General signs                                            | Profound alteration of the<br>general state                                                           | Profound alteration of the<br>general state + fever | Profound alteration of the<br>general state |
| Physical signs                                           | Paraplegia of the lower limbs,<br>sensory level at D4 and<br>abolition of osteo-tendinous<br>reflexes | Painful hepatomegaly<br>(hepatic arrow at 25 cm)    | Painful right pelvic<br>tumefaction         |
| Biological characteristics                               |                                                                                                       |                                                     |                                             |
| Direct examination of<br>pus                             | Absence of germ                                                                                       | Absence of germ                                     | Absence of germ                             |
| Pus culture                                              | Sterile                                                                                               | Sterile                                             | Sterile                                     |
| CRP (mg/l)                                               | 170                                                                                                   | 372                                                 |                                             |
| White blood cells<br>(cells/mm <sup>3</sup> )            | 20 670                                                                                                | 9540                                                | 16430                                       |
| Neutrophils<br>(cells/mm <sup>3</sup> )                  | 18396                                                                                                 | 7310                                                | 14290                                       |
| Platelets (cells/ $\mu$ l)                               | 175 000                                                                                               | 116 000                                             | 524 000                                     |

|                                                                                                                       |
|-----------------------------------------------------------------------------------------------------------------------|
| Histology                                                                                                             |
| Necrotizing lesions associated with palisading filaments and yellowish granules making the diagnosis of actinomycosis |

### Références:-

1. Bourée P, Bisaro F, Resende P. Actinomycose : du saprophytisme à la pathogénicité. Antibiotiques.2009;11(3):142-9.
2. Houman MH, Ben Ghorbel I, Rammah Ben Achour N, Ezzaouia K, Fendri C, Zlitni M, et al. Actinomycose vertébrale avec compression médullaire. À propos d'un cas. Rev Médecine Interne.2001;22(6):567-70.
3. Yamada Y, Kinoshita C, Nakagawa H. Lumbar vertebral osteomyelitis and psoas abscess caused by Actinomyces israelii after an operation under general anesthesia in a patient with end-stage renal disease: a case report. J Med Case Reports.2019;13(1):351.
4. Ketata S, Ben Mabrouk M, Derbel F, Fodha I, Sabri Y, Trabelsi A, et al. Actinomycoses abdominales à forme tumorale : une série rétrospective de sept observations. Rev Médecine Interne.2010;31(11):735-41.
5. Faillon S, Dubos F, Thumerelle C, Maurage C-A, Martinot A. Actinomycose thoracique : est-il possible d'y penser plus tôt ? Arch Pédiatrie.2011;18(5):558-61.
6. Louerat C, Depagne C, Nesme P, Biron F, Guerin J-Cl. Actinomycose disséminée. Rev Mal Respir.2005;22(3):473-6.
7. Gueddari F, Benzekri L, Dafiri R, Hassam B, Imani F. Aspects radiologiques et tomодensitométriques de l'actinomycose thoracique à propos d'un cas. MAG 1998;67:21-6.
8. Millet A, Bachelet A, Croguennec M. Actinomycose pelvienne. Ann Fr Médecine D'urgence.2020;10(1):41-2.
9. Haloui I, El Biaze M, Yassine N, Bakhatar A, Alaoui-Yazidi A, El Meziane A, et al. Actinomycose pulmonaire. Rev Pneumol Clin.2004;60(6):357-61.
10. Rakotoson JL, Andrianasolo R, Rakotomizao JR, Rakotoharivelo H, Andrianarisoa ACF. Actinomycose pulmonaire disséminée avec atteinte hépatique : une forme trompeuse mimant un tableau polymétastatique. Rev Pneumol Clin.2012;68(1):40-4.