

Cervical Tuberculosis Infection and its Treatment

Copete I,
Ferràs J,
Bas T.

Hospital
Univeristari I
Politènic La Fe,
Valencia
Avda Fernando
Abril Martorell
106, Valencia,
Spain

Background: Extrapulmonar tuberculosis (TBC) frequently includes vertebral affection but cervical levels are the less frequently affected. Its clinical presentation is very variable depending on the age. Both the low frequency and the clinical variations are the reason because its treatment in children is controversial and different depending on the hospitals.

Methods: We show a 3 years woman with an cervical abscess and spondylodiscitis because extrapulmonar TBC which presented with medullar and tracheal compression. Patient needed anterior and posterior approach during the surgery to release of the compression and arthrodesis.

Results: Clinical symptoms resolved after surgery. No new signs neither symptoms after 18 months of fellowship and Magnetic Resonance Image (MRI) controls.

Conclusions: According with bibliography and our own experience, we recommend to personalize each treatment for each patient to the correct treatment of this disease, overall in the strange cases when surgery will be needed.

1. Corresponding Author: 1. Corresponding Author: ivan.copete01@gmail.com

Key words: Pott disease, Tuberculosis, Cervical Spine.

Journal of Orthopedic Surgery and Traumatology 2018. jostlafe@gmail.com

Introduction

Tuberculosis (TBC) is an infectious disease with an important prevalence in both the developed and underdeveloped countries. Axial skeleton affection (Pott Disease) is frequent when it has extrapulmonar dissemination. Although, cervical affectation is rare, and its clinical presentation is different depending on the age. Normally, in younger than 10 years, it is extensive, diffuse and creates big abscesses. Although, in older than 10 years, it's normally more located and less purulent, but it normally associates a higher neurologic affection.

On the other hand, in very small children, diagnosis is difficult because of the difficult of anamnesis and exploration to

associates a delay in the diagnosis and in the treatment too.

We show a Tuberculous spondylodiscitis in a 3 years old girl treated surgically with debridement and cervical arthrodesis in two times surgery because the abscess formation that required surgical drainage.

Case Report

Girl, 3 years old, no previous diseases. She comes to emergency department because of dorsal pain of 4 weeks of evolution, with worsening during the night and improvement with Non Steroidal Analgesia (NSAID). No previous trauma neither other significant events referred to initiate the pain. No fever and no other systemic signs neither symptoms.

During clinical exploration, laterocervical adenopathies were found. Lhermitte sign negative, no neck rigidity neither other meningeal symptoms. Cranial Nerves were normal and sensibility and motor function was normal everywhere. Reflexes were normal and symmetric. No sphincter affection was saw.

Slight loss of strength was seen on the MMII with a 4/5 level of the MRC was diagnosed. A light inclination of the body was saw and a little tilt of the head was referred. Pain with cervical flexion, but no with other movements of the head.

She wasn't able to sustain its head in a sitting position. Muscular contraction in cervicothoracic level, where a muscular contracture was diagnosed.

Blood analysis was performed and inflammatory signs were saw with a VSG of 72 mm/h, LDH of 221 U/L). White blood cells (WBC) were normal. Cervical X-ray were performed and an anterior and right tracheal displacement was obvious, with maintenance of its diameter. Left hilar adenopathies were saw.

MRI show a prevertebral mass with soft tissue characteristics from the superior vertebral plate of C7 until intervertebral space of T3-T4. Its dimensions were 42 x 20 x 32 mm in CC, AP and T respectively. T1 was destroyed. In MRI, trachea was stenotic 3 mm with medullar compression.

Mediastinal adenopathies, cervical bilateral and little abscesses in supra and infratentorial territories were saw.

Osseous gammagraphy was normal. CRL was normal, clear and transparent. No cells were obtained and glucose levels were of 58 mg/dl, 48,4 mg/dl proteins, what didn't suspect us infection of the meninges.

Mantoux was positive in 48h and HBR + E were began 2 weeks before surgery.

Surgery was taken in two times. The first one, an anterior approach was performed in order to make the decompression using superior and inferior to T1 discectomy and corpectomy of T1. Abscess was cleaned and a Moss Miami cylinder was included. After surgery, the girl did an episode of desaturation, agitation and ocular deviation that needed intubation, which was maintained until second surgery. In the second surgery, a posterior approach liberation was developed with C7 and T1 laminectomy and C4-T3 arthrodesis with pedicle screws and laminar hooks. After second time surgery, no other complications were developed, and she was able to maintain a 100% saturation without other clinically important events. Normal sensibility and motor function was maintained. Fusion was helped by a Minerva-Indiana corset as external fixation.

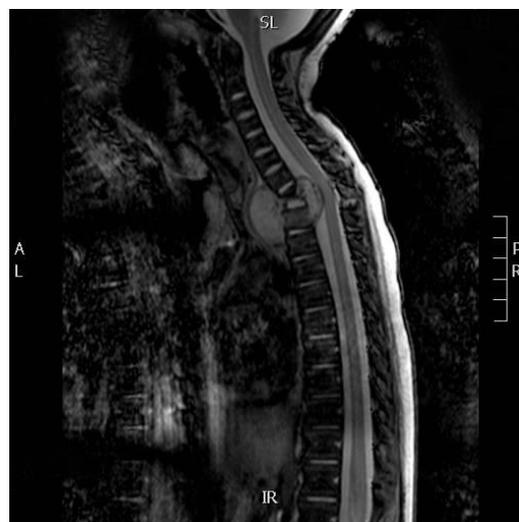


Figure 1. MIR that shows soft tissue mass between C7 and T3 with anterior extension and medullar compression.

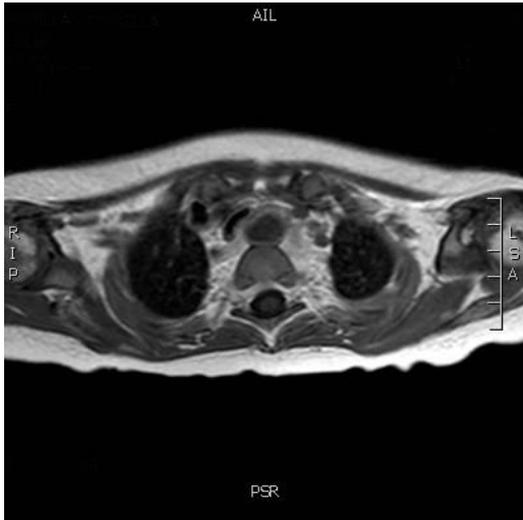


Figure 2. Cervical MRI, axial image that shows tracheal compression and stenosis.

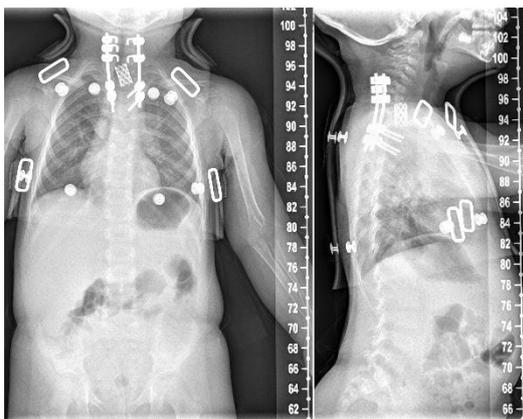


Figure 3 X ray image after second surgery wearing a Minerva-Indiana corset.

Discussion

TBC is a world prevalent disease with a higher number of cases in no developed countries. Osseous TBC takes place between a 1% to 6% of children with pulmonary TBC and the most frequent location of the extrapulmonar TBC is the axial skeleton, which has de own name of Pott's disease.

Normally, dorsal and lumbar zones are the most frequently affected, but in a 7% of the Pott's disease, it affects to cervical spine, what represents a 0.03% of all the pulmonary TBC. Normally, it's presented as neck pain, but other symptoms can be developed as fever, weight loss, anorexia, edema, torticollis, adenopathies, kyphosis, respiratory restriction, dysphagia, trismus and hipoglossus affection.

Depending on the age, its clinical signs and symptoms can vary. While big abscesses and a big local extension of the disease is normal up to 10 years, in older than this age that's strange and there is a predominance of paraplegia.

Axial Skeleton X-ray, Thorax Radiographies, CT and MRI are necessary to study properly the local affection of the disease. MRI is the gold standard test because of the information about neural structures, paravertebral zone, neurological affection and extension, what is useful not just to the diagnosis, to the surgery planning too.

AntiTBC drugs have improved the results of the treatment and can treat successfully the most important part of the patients. Although, because of the resistance to this drugs or the bad treatment fellow by the patient, surgery can be necessary. With surgery, we obtain a fast decompression and we can remove the affected bone, getting a best access to the infection by the antibiotic drugs. Patients with a low neurologic affection and an early surgery have better functional results after the treatment than those with a worse neurologic situation and a later surgery treatment.

Overall, surgery can take place when it's pain, neurologic affection, osseous destruction, instability, dyspnea, dysphagia, dysphonia or axial deformity. Of course, surgery must be developed when medical treatment fails.

Anterior debridement with vertebral fusion(Hong Kong method) is widely used in patients with vertebral tuberculosis. It has better results than medical treatment and better than anterior debridement without arthrodesis, overall when fusion and deformity correction are necessary. It reduces the time to reduce pain, the time needed to resolve the abscess, the neurologic symptomatology and axial deformity.

Because of the instability created with a radical anterior debridement, anterior osseous graft and posterior fusion are recommended, in order to prevent deformity progression after surgery. Posterior fusion, complementary to posterior fixation and anterior fusion, improves the results but it increases the surgery time, the blood loss, the postoperative complications and the hospital stance.

In conclusion, the anterior approach with anterior radical debridement and anterior graft is the election treatment when the deformity is no very important. Double surgery approach in two times is used when there is a mutisegmentary affection with a big deformity related, because of the big instability created during the anterior release and the need of posterior fixation to prevent the deformity progression.

References

1. Tian Y., Xiaolong S, Wang X, et al. Tuberculosis of the lower cervical spine (C5-C6) in a 24-month-old infant. The spine journal. 2013; 13: 17-20.
2. Pérez S, Moreno I, Garcés M, Bas T, et al. Espondilitis tuberculosa no es una metástasis vertebral: diagnóstico diferencial y tratamiento quirúrgico. A propósito de un caso. Revista española de cirugía osteoarticular. 2011. 46 (248).
3. Upadhyay SS, Sell P, Saji MJ et al. Surgical management of spinal tuberculosis in adults. Hong Kong operation compared with debridement surgery for short and long term outcome for deformity. Clin Orthop 1994; 173-82.
4. Medical Research Council Working Party On Tuberculosis of the Spine. A controlled trial of anterior spinal fusion and debridement in the surgical management of tuberculosis of the spine in patients on standard chemotherapy: A study in Hong Kong. Br J Surg 1974; 61:853-66.
5. Sundararaj GD, Behera S, Ravi V et al. Role of posterior stabilization in the management of tuberculosis of the dorsal and lumbar spine. J Bone Joint Surg Br 2003;85:100-6.
6. Hsu LCS, Leong JCY. Tuberculosis of the lower cervical spine (C2-C7). A report on 40 cases. J Bone Joint Surg Br 1984;66:1-5.
7. Govender S, Ramnarain A, Danaviah S. Cervical spine tuberculosis in children. Clin Orthop Relat Res 2007;460:78-85.