

ADVANCED OBSTRUCTIVE RESPIRATORY FAILURE IN THE EVOLUTION OF CHRONIC RHEUMATOID ARTHRITIS. CLINICAL CASE

Dorin CODARCEA-MUNTEANU¹

Abstract: *Through this study, we are exploring an interesting case, particular by the severe clinical evolution of a patient with rheumatoid arthritis to the point of severe respiratory failure and emergency tracheostomy. The superior airwaves' obstruction is a severe entity with a vital importance, which must be correctly recognized and evaluated both by the ENT specialist and the other physicians.*

Key words: *dyspnoea, Gerhardt syndrome, rheumatoid arthritis.*

1. Introduction

The glottis anatomical conformation (cartilages, arytenoids, ligaments, muscles, mucosae, recurrent nerves) is often pathologically affected, with the modification of the vocal chords' mobility, which in term might cause respiratory disorders [2], [5], [8].

Cricoarytenoid ankylosis may occur as a result of TB infections, syphilis or in rheumatoid arthritis and damage of the laryngeal muscle (Larynx intrinsic muscle) myopathy can be considered as a result of the rheumatoid neuropathy with secondary muscle atrophy.

The crico-arytenoidian articulation is a synovial diarthrosis. This means that it too can be interested by the rheumatoid processes. [2],[4],[5],[8]

2. Clinical study

R.E., female aged 72, from urban environment, retired, was hospitalized on 25.03.09 at the ENT emergency unit (O.S. 32200/55).

The patient was in the evidence of the Bucharest and Brasov Rheumatologic speciality, diagnosed with chronic progressive rheumatoid arthritis for 40 years. For this disease, she was periodically investigated and treated with Methotrexate, folic acid and Movalis.

At the time of tracheostomy, the patient was diagnosed with rheumatoid arthritis stage 3/4 meaning joint deformities, subluxations, fibrous boney ankylosis, and intense muscle atrophy.

On the day of admission, the patient was diagnosed in the ER department of the Emergency County Hospital Braşov with

¹ Ph.D. Lecturer , *Transilvania* University of Braşov.

viral respiratory infection, acute laryngitis. The next 24 hours severe respiratory failure occurs and the patient is moved to the ENT unit.

Clinical signs on admission: cyanosis, coughing, suprasternal and epigastric tirage, corneal.

The somehow abrupt debut is to be noted, 2-3 days ago with fever, coughing, hoarseness, swallowing difficulty, and advancing suffocation.

Indirect laryngoscopy – ENT examination

It showed stiffness of the vocal chords in adduction with rash, including the arytenoid region, with the lack of any tumoral, oedema or foreign body evidence.

The laryngeal dyspnea's differential diagnosis was made with cardiac dyspnoea (E.K.G), bronchopulmonary disease (radiologically- oemphisema, accentuated vascular hilum, heart plumb, sthetoscopically negative at the pulmonary region), lack of pathologic neurological signs.

It has been established based on the patients' old age, relative quick debut of the dyspnoea, corneal, cyanosis, association with rheumatoid ploiartthritis. [3], [7], [8]

The vital prognosis and the reversibility of the obstruction depend on the rapidity airway repermabilisation, that is why I recommended an emergency tracheostomy (P.O. 742/25.03.09) with the administration of cortisone, antibiotic, bronchodilator, oxygen-therapy. Also, xylene 1% anaesthetic on the pretracheal cervical zone was administrated.

During the procedure, it has been excluded the inflammatory or tumoral invasion of the tyroid gland trough direct examination, which in term could compress the recurrent nerve.

3. Clinical evolution

Immediately post operator, normal

breathing reinstalled. The therapy was continued following the tracheostomised patients' protocol (tracheal cannula hygiene, antibiotics, controlled environment, expectorant, adequate per os and parenteral alimentation).

4. Diagnostic investigations

- blood work: ESR 44/77, fibrinogen 561 mg/dl, ASO 60u, CRP 5,0mg/l.
- imagistic: cervicopneumomediastinal CT – negative
- indirect and direct laryngoscopy: repeated during the 18day hospitalization, showed the persistence of median vocal chords adduction and arytenoid immobility

The normal aspect of the glottis laryngoscopy, allows in both stages of breathing adaptation to the needs of respiratory ventilation (Fig.1).



Fig. 1. *The normal aspect of the glottis*

The pathological aspect of glottis in various disorders (paralysis, ankylosis) reduces the respiratory space causing dyspnoea (Fig. 2).



Fig. 2. *The pathological aspect of the glottis causing dyspnoea*

- follow-up: at 6 months (10.09.09) persistent narrowing of the glottic space

which makes impossible the removal of the cannula.

5. Interpretation. Discussions

The clinical emergency made the chirurgical and medical treatments utmost important for the patients' immediate vital development.

Sometimes the tracheostomy is a needed emergency procedure, made without other clinical or paraclinical procedures [8].

The pathologic rheumatoid context and essential laryngeal dyspnoea symptoms suggested the possible pathology of the crycoaritenoid articulation.

We consider that a viral infection of the superior airwaves (fever, coughing, hoarseness, difficulty swallowing) might worsen the ankilosis of the articulation.

Rheumatoid arthritis is known to cause small articulation affections, such as interphalagian a., in 91% of cases, radiocarpian a., in 78%, temporo-mandibular a.[1],[5]

This pathology is associated with vassa vasorum vasculitis, cranial nerve inflammation, paraesthesia, paralysis, amyotrophia, crycoaritenoidian arthritis, ankilosis and inflammatory myositis [1], [5].

Cartilage inflammation due to recurrent policondritis can cause asphyxiation and respiratory complications with 10% deaths. During evolution, however, there can be spontaneous remissions noted [3]. The gout disease can develop with a monoarthritic inflammation aspect.

Bacterial infectious arthritis can determine an pseudophlegmonous aspect, depending on the microbial agent (Neisseria gonorrhoeae, Staphilococcus aureus, Haemophilus influenzae, Streptococcus B hemolitic group A) having a pathological effect on a single articulation [5].

Acute rheumatoid arthritis may cause laryngeal arthritis.

Gerhardt neurological syndrome accounts for 10% of stroke cases, infections, craniocerebral traumatisms, poliomyelitis, multiple sclerosis [6].

In the glotic dysfunction disease, it is recommended the immobilization of the vocal chords until establishing the actual cause.

From the EMT section of Braşov there have been a 54 study cases of tracheostomy between 2000-2002 with a percentage of 78% of patients (42) with pharingolaringian tumors, 12% with epiglottitis, 7,40% with recurrential paralysis, and 1,86% with laryngeal cysts [3].

After 6 years of evolutions the patient has a general condition affected by the evolutions of the underlying disease and drugs side effects (osteoporosis, fractures of the femur).

In 2009 the patient presented a tracheobronchitis, secondary to tracheostomy and cannular respiration. She was admitted and investigated in the Pneumology Hospital (bronchoscopic examination with direct bronchial aspirate, sputum culture test for BK). Tracheobronchial tuberculosis has been confirmed but the evolution was favorable towards healing. In 2015 the patient was diagnosed with bacterial tracheobronchitis (with Pseudomonas Aeruginosa) and was treated with antibiotics according to antibiogram. As a result of age, osteoporosis and chronic treatment with anti-inflammatory cortisone, the patient developed a hip fracture for which she was admitted to Orthopedics.

6. Conclusions

- because of the severity of the laryngeal articular affection, the chirurgical procedure was done to save the patient's life.

- In the aforementioned situation, the intensive exploration to establish a diagnosis may impair heavily the patient's health. Therefore, the therapeutic decision was taken based on anamnestic and clinical exam findings [8].
- The alimentation of the patient is based on its rheumatoid history and the existence of the tracheal cannula.
- It is necessary to follow-up the patient's evolution concerning the rheumatoid arthritis and the tracheal opening diameter.

This case is currently supervised by the ENT and Rheumatologic departments. The patient has currently a mounted tracheal cannula, which will remain in use all the patients' life due to definitive crico-arytenoidal ankylosis.

References

1. Cristea, D.: *The otolaryngologists' contribution and limits in the diagnosis and treatment of upper airwaves obstructive syndrome*. In: ENT Romanian Magazine, vol. XXIV, nr.1 2002, p. 15-19, Sf. Ap. Andrei Emergency hospital, Galaţi.
2. Gârbea, Ş.: *ENT pathology*. Colţea clinical hospital. Bucharest. Ed. Didactică şi pedagogică, 1980.
3. Gheorghe, B., Codarcea-Munteanu, D.: *Upper obstructive respiratory failure*. In: *Degree thesis, Medicine Faculty of Transilvania University Brasov*, 2003, p. 29-40.
4. Greere, M.I., Popescu, C.R., Moisescu, E.: *Difficult tracheal intubation – DTI*, In: Romanian ENT Magazine, vol. XXIX, nr. 1, 2007, p. 19-20. Colţea Clinical Hospital, Bucharest.
5. Ionescu, R.: *Rheumatology essentials*, In: Internal medicine and Rheumatology departments at UMF „Carol Davila”, Ed. Medicală Amaltea, 2006, p. 68, 227, 228, 231, 430, 482, 492.
6. Lupescu, S.: *CO2 endoscopic laser treatment of bilateral adduction paralysed vocal chords (kashima technique)*. In: ENT romanian magazine, vol XXIV, nr.4, 2002, Ed. Medicală Amaltea, p. 263.
7. Pop, T., Matic, C., Beligăr, D., Pop, A.: *Adult laryngeal papillomatosis*. In: Romanian ENT magazine, vol XXIV, nr.2, 2002, pag. 95-96. ENT Unit, Cluj-Napoca.
8. Zăineanu, V.: *Emergency tracheostomy in some sleep apnea syndrome forms*. Panduri ENT clinical hospital Bucharest (prof. PhD. Dorin Hociotă), In: Romanian ENT magazine, vol. XXVII, nr. 3, 2005, Ed. Conphys, p. 441.