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Research Paper

Tetanus After Ear Surgery – A Very Rare Case Report

Medical Science

KEYWORDS : Cortical mastoidectomy, Tympanoplasty, Papilloedema

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ABSTRACT

Introduction: - Injury to facial nerve, sigmoid sinus, jugular bulb, mastoid emissary vein, dura and ossicular chain are common complications of mastoidectomy. There are some rare complications like pneumocephalus, pneumomediastinum, Papilloedema and brain abscess following mastoid surgery. Post mastoidectomy tetanus is a very rare complication we are presenting here.

Case report: - We are reporting a rare case of post mastoidectomy tetanus. A 24 Year male patient came with history of chronic suppurative otitis media of right ear. He was treated with cortical mastoidectomy and tympanoplasty. Unfortunately patient developed tetanus on third post operative day. He was managed medically and discharged after ten days.

Conclusion: - Tetanus is a very rare complication after mastoidectomy. This case has been reported because of its rare occurrence and we should take the proper pre-operative steps to prevent this complication, as it may be fatal at times.

Introduction

Mastoidectomy is a surgical procedure by which the disease from the mastoid antrum, air cell system and aditus ad antrum are removed, particularly in case of mastoiditis and chronic suppurative otitis media with cholesteatoma.

There are so many complications of mastoidectomy and more in the hand of an inexperienced surgeon. Complications are because of abnormal anatomy, altered anatomy due to disease process, destruction of coverings of the vital structures like dural plate, sinus plate and facial canal etc.

Usual complications of mastoidectomy are injury to facial nerve causing facial palsy, injury to sigmoid sinus, dura and middle ear structures like ossicles are also found in some cases. Some rare complications like pneumocephalus, pneumomediastinum, papilloedema, surgical emphysema and brain abscess following mastoid surgery have been reported in the literature.

Post operative tetanus after mastoidectomy is a very rare complication and no case has been reported in the world literature.

Tetanus is a neurological disorder caused by a gram positive, anaerobic bacteria "Clostridium tetani".

Tetanus is now comparatively a rare disease in the developed countries. But still the incidence is higher in developing countries like India.

This is a preventable and treatable disease. If treated early, prognosis is very good and mortality rate is low.

This case has been reported because of its rare occurrence.

Case report

A 24 year male patient came to our ENT out patient department with chief complaints of intermittent discharge from right ear since 5 years and decreased hearing in that ear since 3months. Detail history was taken and thorough clinical examination was done. He was a non smoker and non alcoholic from a family of low socio-economic status.

On examination of right ear, there was a dry subtotal perforation with slight edematous middle ear mucosa. Mastoid tenderness was positive on the tip of the mastoid process. Eustachian tube function was normal. Other ear was normal and he was having normal nose and throat findings.

Right mastoid was sclerotic on X-ray mastoid. CT scan was showing normal ossicular chain, semicircular canals, cochlea and facial canal with evidence of mastoiditis. There was no evidence of cholesteatoma in the middle ear, attic or mastoid. Pure tone audiometry showed conductive type of hearing loss on right ear.

Patient was diagnosed to be "Right Chronic suppurative Otitis media with dry subtotal perforation and masked mastoiditis" and planned for Right cortical mastoidectomy with tympanoplasty at same sitting.

After all routine investigations including screening tests for retro virus and hepatitis viruses and with all preventive measures like tetanus toxoid vaccine and lignocain test, surgery was done under general anesthesia.

Cortical mastoidectomy was done by post auricular approach and all the disease air cells were removed. Intra operatively there was a big mastoid cavity because of bone erosion. Polypoid mucosa and granulation tissues found in the mastoid cavity were removed. Aditus ad antrum was patent and middle ear was having normal and mobile ossicular chain. Type-1 tympanoplasty was done using conchal cartilage and temporalis fascia.

Immediate post operative period was uneventful and patient was doing well.

On third post operative day patient was complaining of mild dragging sensation in the neck and stiffness over the face and reeling of head. First it was ignored thinking to be mild muscle spasm due to immobility after surgery and advised light neck exercise with oral muscle relaxant.

But after few hours patient developed severe painful spasm of facial and neck muscles. On examination the facial and neck muscles were stiff along with mild stiffness of abdominal muscles. Patient was having typical facial expression of "risus sadonicus". All the vital signs were normal. Upper limbs, lower limbs and back muscles were also normal.

On clinical basis it was diagnosed to be tetanus and patient sifted to intensive care unit. Medical treatment started with out delay. Infusion metronidazole(500mg) started 6 hourly. To reduce muscle spasm slow continuous infusion of diazepam was given in normal saline drip. Human tetanus immune globulin 3000 unit total was given intra muscularly in single dose at different sites. Patient was kept in intensive care unit for 10 days with continuous monitoring of the vitals.

Swab was taken from the mastoid wound and sent for macroscopic examination and culture sensitivity test. Tetanus bacilli were isolated from the wound. His cerebrospinal fluid test was normal.

While enquiring about the childhood history of vaccination, it was found that he has not been vaccinated with any vaccine.

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Patient responded well to medical treatment and discharged after ten days.

Discussion

Mastoidectomy is an operation performed to remove disease from the mastoid antrum, air cell system (when present), aditus ad antrum and sometimes middle ear. Broadly mastoidectomy has been classified in to open cavity mastoidectomy and closed cavity mastoidectomy.

Facial palsy is the most common serious surgical complication during all type of mastoidectomy. Injury to sigmoid sinus superior petrosal sinus, jugular bulb or mastoid emissary vein results in an alarming profuse venous bleeding (1). Complications of open cavity mastoidectomy include deafness or further hearing loss, vestibular symptoms, cerebrospinal fluid leak, infection and recurrent cholesteatoma or drainage (2).

There are some rare complications mastoidectomies reported by different authors.

Lela Migirov et al reported four cases of intra cranial complications following mastoidectomies. Out of four children one was having brain abscess, one having subdural empyema, one having epidural collection and fourth on having sigmoid sinus thrombosis (3).

Dayasena RP et al reported the rare complications like surgical emphysema and pneumomediastinum following mastoidectomy (4).

P. Harkness et al reported an unusual complication of mastoidectomy, papilloedema following cortical mastoidectomy as a part of endolymphatic sac decompression (5).

F Jégoux et al reported a case of pneumocephalus in 43 year old women 37 years after mastoidectomy (6).

Girgis BA et al reported a case of nominal aphasia following radical mastoidectomy (7). A rare complication of cerebral abscess following mastoidectomy for chronic otitis media was reported by **Amit Agrawal et al** (8).

Tetanus infection following mastoidectomy has not been reported in any literature.

Tetanus is an acute disease induced by the exotoxin (Tetanospasmin) of Clostridium tetani, which is a gram positive, anaerobic, spore bearing organism. The natural habitat of the organism is soil and dust. So agricultural workers are at more risk. Infection is acquired by contamination of wounds with tetanus spores. Incubation period is usually 6 to 10 days. However it may be short as one day or as long as several months (9).

It usually presents with increase muscle tone and generalized spasm. Sustained contraction of the facial muscles results in a grimace or sneer (risus sardonicus), and contraction of the back muscles produces an arched back (opisthotonos). Some patients develop paroxysmal, violent, painful, generalized muscle spasms that may cause cyanosis and threaten ventilation.

Both active and passive immunisations are available for prevention of tetanus infection. But it should be pointed out that tetanus may occasionally occur in spite of active or passive immunization or both (9).

So immunization history of the patient with tetanus toxoid is very important before any type of surgery. Because one dose of tetanus toxoid before surgery is not adequate for protection against tetanus.

Photos



(Patient after mastoidectomy)



(Microscopic picture of Clostridium teani)

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