Administration of serratiopeptidase lead to increase in spread of space infection

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Abstract
This article represents a case report in which serratiopeptidase proved a reason to spread of space infection in 32 years old male patient. This case was successfully managed in M.A. Rangoonwala dental college, Pune.

Keywords: Serratiopeptidase, Buccal space infection, Submandibular space infection, Submassetric space infection.

Case Report

A patient [32 years/M] visited with chief complaints of pain, swelling and decreased mouth opening. Clinically, we noticed the solitary hard swelling in the lower left back region of jaw, reduced mouth opening [8 mm] and carious lower left first molar tooth, suggestive of "left submandibular space infection". We prescribed him cefixime 200 mg, metronidazole 400mg, ranitidine 150 mg, diclofenac sodium 50 mg, paracetamol 500 mg.

After 7 days, patient's pain & swelling was subsided and mouth opening was increased [12 mm]. We extracted offending tooth [36] with minimal trauma, prescribed him previous drugs again for 7 days, except metronidazole 400 mg. After this, patient's pain and swelling was subsided.

After 10 days, patient noticed pain, swelling with the same site only and visited some other doctor, who prescribed him diclofenac sodium 50 mg, paracetamol 500 mg and serratiopeptidase 15 mg which patient had for unknown period.

After about 45 days, patient visited us with increased swelling, pain with the same site. There was a solitary, hard, fixed swelling of 5 cm* 4cm in size at the lower left back region of jaw, extending from the rima-oris to the angle of mandible and superior-inferiorly from the line passing from rima-oris to tragus of ear to the inferior border of mandible, "punctum" was also noticed, suggestive of "left submandibular and buccal space infection". Patient's mouth opening was decreased [11 mm]. Radiographic examination showed features of osteomyelitis. We adviced him to stop previous medications and prescribed cefixime 200 mg, metronidazole 400 mg, diclofenac sodium 50 mg, paracetamol 500 mg, ranitidine 150 mg and muscle relaxant containing ibuprofen 400 mg, paracetamol 325 mg, chlorzoxazone 250 mg.

After 7 days, patient came with pus discharge through the punctum and now the patient was suffering from solitary swelling on the left lateral region of neck below the angle of mandible [hard, fixed, tender, 3cm* 2cm in size]. This suggested "left submassetric space infection". Radiographically, there was formation of "odontogenic oro-cutaneous fistula" with the extraction socket of 36.

We admitted the patient, administered cefepime 2gm +Tazobactum 250 mg, amikacin sulphate 100 mg, ranitidine 50 mg, diclofenac 25 mg, paracetamol 500 mg, metronidazole 500 mg intravenously. Patient's complete haemogram showed raised "differential leukocyte count". Patient's "Tuberculin test" was performed which was "negative".

On next day, we planned incision and drainage with left submandibular & buccal space infection. As the swelling present below the angle of mandible, was hard, we did not perform incision and drainage with it. On the next day, this swelling bursted. Then, we explored it. After this, patient's swelling decreased and mouth opening increased, there was absence of pain. After 3 months, radiographic examination revealed complete healing of fistula and patient's mouth opening was increased to 31 mm.

Fig. 1: Pre-operative front profile picture

Fig. 2: Pre-operative orthopantamogram [oro-cutaneous fistula with the extraction socket of 36

Fig. 3: Orthopantamogram after 3 months [Healing of fistula]

Discussion

Odontogenic infections are one of the major sources of fascial space infections in the head-neck region, and they are having the potential to spread via fascial spaces.[7] In this case, the facial spaces affected by the infection are left buccal, submandibular, submassetric spaces.

The involvement of "submasseteric space" by fascial space infection is rare. Very few cases of it are reported.[8] Surgical incision and drainage under antibiotic coverage is the treatment for fascial space infection.[13]

Osteomyelitis is an inflammatory disease affecting bones.[6] Osteomyelitis of jaws following dental treatment is rare and mostly it occurs in immune-compromised patients. Hence, we suspected that patient might be suffering from tuberculosis and performed "tuberculin test" but it was "negative".

Radiographic features of osteomyelitis are radiolucency, bony destruction and sequestrum formation.[6] Orthopantamogram revealed radiolucent areas, bony destruction, formation of fistula from the extraction socket of 36 to the inferior border of mandible. Odontogenic oro-cutaneous fistula is a tract which starts at the apex of an infected tooth or of infected region of the jaw via the alveolar bone and drains all the infection, pus through the skin.[9]

"Serratiopeptidase" is an enzyme which is having proteolytic action. Serratiopeptidase is retrieved from the non-pathogenic enterobacteria serratio E15 which is found in silk-worm. It is used as an anti-inflammatory drug.[2] Serratiopeptidase causes degradation of insoluble protein products like fibrin and inflammatory mediators. Viscosity of exudates is reduced by the serratiopeptidase, and this facilitates drainage and it relieves pain by inhibiting the bradykinin release.[1]

Any abscess is surrounded by effused & organized fibrin and inflammatory cells. Serratiopeptidase breaks this fibrin and the pus spreads into the deeper planes. Literature supports that administration of serratiopeptidase causes spread of infection.[1]

Conclusion

Administration of "serratiopeptidase", in cases of fascial space infections should be limited as it can cause spread of infection.

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