Persistent or secondary infections are a major cause of endodontic treatment failure. Bacteria that survive treatment may remain in the periradicular tissue as a persistently infected root or may be reactivated (1-2). Actinomyces and Propionibacterium species can invade the apical tissues and form apical periodontitis (AP) by self-sustained chronic inflammation termed as ‘actinomycosis’. We report the treatment of a refractory AP diagnosed as granuloma with colonies consistent with actinomyces. Non-surgical root canal treatment failed to resolve the apical periodontitis. An apicoectomy using microsurgical techniques was done to remove the lesion and resect the involved apical periodontal tissues. Microscopic examination showed resolution of the treated root. Emdogain, demineralized freeze dried bone allograft and calcium sulfate were used to graft the residual bony defect. Healing was uneventful and after four months clinical and radiographic evaluation show evidence of hard and soft tissue repair. This report describes the successful diagnosis and treatment of refractory endodontic infection with granulomatous actinomycosis.

Case Report

Dental History/Sensory testing

A 34 year old male with unremarkable medical history presented to the graduate endodontics clinic referred for evaluation of an asymptomatic lesion apical to teeth #7 and 8 with a history of trauma to the face when he fell at 8 years old. Upon clinical exam and testing the finding were no response to cold (90%v) on teeth #7 and 8 with pain to percussion only. There was no pain to palpation, class II mobility noted on teeth #7 and 8 and probing depths were 2.3 mm. Radiographic exam revealed a 2 x 1.5 cm periradicular radiolucency lesion with well defined borders encompassing the apices of teeth #7 and 8. Tooth #8 appeared to have an underdeveloped root apex and tooth #7 had a coronal root restoration.

Treatment

Evaluation – 11-4-11

• Examination was performed to determine teeth #7 and 8 were both necrotic with symptomatic apical periodontitis.
• Patient was referred to a surgical specialist for possible surgical endodontic treatment.

Nonsurgical endodontic treatment – 1st visit – 3-13-12

• Nonsurgical endodontic treatment was initiated on both teeth #7 and 8. Due to the unpredictability to properly debride the apical portion of tooth #7 due to the nondeveloped apex, a CBCT was taken and surgical debreadment was recommended with apicectomy of teeth #7 and 8. Calcium hydroxide was placed and the patient was given a prescription for amoxicillin 500 mg 21 tabs bid.

Nonsurgical endodontic treatment – 2nd visit – 4-30-12

• Patient returned for obturation of teeth #7 and 8 stating he was asymptomatic. Tooth #7 was obturated apically with MTA followed by a lunch of gutta percha/90’s sealer. Tooth #8 was obturated with gutta percha/90’s sealer.

Surgical endodontic treatment – 5-16-12

• The patient presented for surgical debrieved/apicectomy/rootfil. An intrasulcular incision was made with vertical releasing incision distal to tooth #7’s 5 and 10. Ostectomy was created, the lesion was excised and sent for biopsy. The apical segment of tooth #7 was treated and already had MTA in the apically prepared segment for adequate seal. Tooth #8 was retro-filled with a #1 and #2 surgical ultrasonic tip and basare ERM putty was used as retro-filling material. Emdogain, DFMA, and calcium sulfate were used to graft the residual bony defect. 5-6 ml sutures were used to reapproximate the flap. The patient was given prescriptions for amoxicillin 500 mg 21 tabs 1 q4h, vicodin 5/500 20 tabs 1 q8h and suprofen 20 tabs 1 q8h and placed on peridex 0.12% bid and advised warm salt water rinses qid.

1 Week Subsequent Removal/Follow-up – 5-20-12

• Sutures were removed and soft tissue healing was WNL. Biopsy report histological diagnosis: RIGHT ANTERIOR MAXILLARY REGION OF TEETH #7 AND 8, PERIODONTAL GRANULOMA WITH FIBROSUS CONNECTIVE TISSUE SCAR, ACID RESISTANT BACTERIAL COLONIES MORPHOLOGICALLY CONSISTENT WITH ACTINOMYCES SPECIES

3 Month Surgical Follow-up – 5-27-12

• Soft tissue healing WNL. PD’s 2-3 mm.

4 Month Surgical Follow-up – 5-27-12

• PA taken (Figure 4). Hard tissue healing progressing WNL, soft tissue healed WNL, appearance of intact periradicular ligament development. No pathosis detected.

• No swelling or drug tract clinically present, teeth #7 and 8 asymptomatic to percussion and probing. 2-3 mm 2-mo and no mobility.

Conclusions

The treatment of localized actinomycosis with surgical debriedment has been recommended with no need for long-term antibiotics. Due to the large size of the lesion as well as the understanding of the antimicrobial resistance properties of the bacteria the severity of the case warranted. It can be presumed that without surgical intervention, the extracoronal actinomycotic infection would not have healed. The six month delay between completion of nonsurgical and initiation of surgical treatment exemplified this. This case report confirmed that successful treatment of localized actinomycosis with the combination of nonsurgical and surgical endodontics with a one week course of antibiotics and adjunctive GTR provided successful clinical and radiographic healing at four months.

References