Introduction

Cracked tooth syndrome is characterized by a crack in a tooth that extends into the dentin and variably painful, however she continues to have significant discomfort on the gingival tissues and with her teeth.2-3 mm 0

The following case report details a 58-year-old female that was initially diagnosed with Trigeminal Neuralgia that was later discovered to be Herpes Zoster. She then experienced several months of postherpetic neuralgia resulting in painless to her lower left quadrant. During episodic breaks in the paresthesia, she would complain of symptoms consistent with cracked tooth syndrome (vague, intermittent pain on biting and chewing with difficulty localizing the). She states that she has very little numbness on her left side today and feels confident that she can be tested accurately in this area to determine if the source of her pain is odontogenic in origin. Pulp vitality testing was attempted on all teeth in this quadrant. A diagnosis of irreversible pulpitis with symptomatic apical periodontits was determined for tooth #20 (Figure 3A). During the clinical examination, the lingual cusp of tooth #20 was found to be fractured. This segment could be removed from the remainder of the tooth, and the lingual pulp horns appeared to be exposed. The tooth was treated with nonsurgical endodontic therapy. The resin bonded fiber post was placed into the canal (Figure 4). The tooth was prepared for a full coverage restoration, temporary restoration placed, and the patient referred back to her dental student for completion of full coverage restoration for tooth #20.

Consultation 4/22/2009

A 58-year-old female presented to theIndiana University School of Dentistry for new patient admission. A review of her medical history revealed that she was taking the following medications: Propranolol, Famciclovir, Tramadol, Naproxen, and an Altitudes inhaler. A full mouth series of intraoral radiographs was recorded. The patient complained of spontaneous pain in her lower left quadrant of approximately four days duration. The pain is described as a sharp electric-like shock that lasts for a few seconds to one minute. The patient states that she is concentrated to the left side of her face and seems to be triggered when she eats or drinks anything and it touches the left side. The patient was informed by her family physician that she was experiencing trigeminal neuralgia, but she was unsure of this diagnosis and came to the dental school for a second opinion. She was apprised for reevaluation of the pain and development of a treatment plan. Clinical photos were taken (Figures 1A-1D).

1 week follow-up 6/29/2009

Patient presented for development of a comprehensive treatment plan. She was now experiencing severe pain on the lower left side of her mandible. Patient had multiple intraoral and extra-oral ulcerations and vesicles present (Figure 2B ). These intraoral ulcerations are 1-3 mm in diameter and are limited to the left side of the soft palate, left buccal mucosa, and left vermilion border. Extraoral ulcerations are present in the area of the left commissure, skin overlying the angle and inferior border of the mandible; and the skin just anterior to the left ear (Figure 2C). The patient states that her pain level is now 8 out of 10. Pulp vitality testing was attempted in the lower left quadrant, but was unreliable. No definitive pulp or periapical diagnosis could be made at this time. Previous restorative and endodontic treatment was noted in chart. All of the ulcerative lesions appear to be within the distribution of the third branch of the Trigeminal nerve-V3 (Figure 2A-2D). A differential diagnosis of Herpes Zoster was made and the patient was prescribed the following medications: Viscoprin 7.5,200, Famvir 500 mg, and Benoconitrat oral oint. Pt. was then scheduled for follow-up in four days.

2 week follow-up 7/10/2009

The patient returned four days later for follow-up. She states that the intraoral mucosal lesions are less painful, however she continues to have significant discomfort on the gingival tissues and with her teeth in the lower left quadrant. She also states that she has started to develop what she describes as "numbness and tingling" in this area that causes her pain to decrease significantly in intensity. Pulp vitality testing was attempted on all teeth on the left side (maxillary and mandibular). All remaining teeth in the lower left quadrant are unresponsive to thermal testing (heat and cold) and to electric pulp testing. Pulp vitality testing to all teeth in this quadrant provides a negative response. Due to the pain medication the patient is currently taking, and the inability to develop a definitive pulp or periapical diagnosis, no endodontic therapy was initiated at this time. Pt. informed to follow up with her family physician for confirmation of diagnosis, and to return to the graduate endodontic department if the discomfort begins to localize.

Discussion

Determining the exact etiology is a continuous challenge in diagnosing oral-facial pain for the dental practitioner. Differentiating between odontogenic and nonodontogenic causes can prove difficult.1 Disease entities from either one or both of these sources are often systemic, or even coincidentally. Odontogenic pain can manifest as a pulpitis, periodontitis, dentin hypersensitivity, or pain associated with a cracked tooth.2-3 Nonodontogenic causes of oral-facial pain include, but are not limited to, temporomandibular joint disorders, myofacial pain disorders, neuritis, sinusitis, head and neck cancer, infections (bacterial, viral, and fungal), chronic pain conditions (fibromyalgia, post-traumatic stress disorder), autoimmune disorders, and chronic mechanical or chemical irritation.2,3 This case detailed a 56-year-old female initially diagnosed with Trigeminal Neuralgia that was later discovered to be Herpes Zoster. She then experienced several months of Trigeminal neuralgia ending in painless to her lower left quadrant. During episodic breaks in the painless, she would complain of symptoms consistent with cracked tooth syndrome. A diagnosis of cracked tooth syndrome was eventually made and treated with non-surgical root canal therapy and a full coverage restoration on tooth #20. Formation of an accurate diagnosis can only be made after careful examination of all objective and subjective clinical findings.

References


5 Week follow-up 7/30/2009

Patient returned to IUSD for oral prophylaxis. She states she was diagnosed with Ramsay Hunt syndrome by her physician, and is now taking Neurontin and continuing narcotic pain relievers. Ramsay Hunt syndrome is a disorder of the brain and nervous system that occurs when a virus, very often one that causes chickenpox, invades certain nerves in the brain. She continues to experience periods of "tingling and numbness" in the lower left quadrant. Results from vitality testing are still unreliable. She reports that her discomfort is reduced, but during the periods when the numbness subsides, she has spontaneous pain and pain on chewing in the affected area. She was informed to return to the graduate endodontic clinic when pain localizes and paresthesia resolves.

Endodontic Treatment 10/12/09

Patient returned to the graduate clinic and was evaluated by Dr. Vail. A diagnosis consistent with cracked tooth syndrome (vague, intermittent pain on biting and chewing with difficulty localizing the). She states that she has very little numbness on her left side today and feels confident that she can be tested accurately in this area to determine if the source of her pain is odontogenic in origin. Pulp vitality testing was attempted on all teeth in this quadrant. A diagnosis of irreversible pulpitis with symptomatic apical periodontits was determined for tooth #20 (Figure 3A). During the clinical examination, the lingual cusp of tooth #20 was found to be fractured. This segment could be removed from the remainder of the tooth, and the lingual pulp horns appeared to be exposed. The tooth was treated with nonsurgical endodontic therapy. The resin bonded fiber post was placed into the canal (Figure 4). The tooth was prepared for a full coverage restoration, temporary restoration placed, and the patient referred back to her dental student for completion of full coverage restoration for tooth #20.

Crown Implant 11/13/09

Patient presented for examination of crown prop #20. I examined and interviewed her prior to the initiation of her treatment by her dental student. She reported that she was asymptomatic and has been able to chew on her left side since completion of the nonsurgical root canal therapy on tooth #20. I then repeated vitality testing on all teeth in the lower left quadrant with no significant findings. The impression for the prostheses was taken and the patient was reappointed for cementation of the crown for #20.

Crown Cementation 12/16/2009

Patient returned for cementation of full coverage porcelain fused to metal crown #20. I again examined the patient and performed the final evaluation of crown prop #20. She reported that she was asymptomatic and has returned to normal functioning on her left lower side. Prosthesis was cemented and occlusion adjusted by her dental student. She reported that she was asymptomatic and has been able to chew on her left side since completion of the nonsurgical root canal therapy on tooth #20.

5 Month Follow-up 3/15/2010

Patient presented for a five month follow-up to check the status of tooth #20. A periapical radiograph was recorded and clinical testing was performed. All teeth in the lower left quadrant tested within normal limits (Figure 3B). Patient reported that she has been pain free and functioning normally until three days prior when she began to experience another outbreak consistent with her initial presentation. Radiographs show no pathosis and an intact crown (Figure 4). She was advised to return to her family physician for evaluation.

Trigeminal Neuralgia, Herpes Zoster Neuralgia, and Cracked Tooth Syndrome: A Case Report

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FIG 4. Periapical radiograph 7/10/09. Radiograph after fx 10/12/09. Initial post-op 10/12/09 5 month recall 3/15/10