

MISDIAGNOSIS LEADING TO ROOT CANAL OVERKILL

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Raj Patel, a 49-year-old Asian male from Goose Creek, SC arrives at a dental clinic two years after he had last been seen, presenting with pain in his lower left dentition.

WHO IS RAJ PATEL?

Mr. Patel drives about 45 minutes to receive dental care at our comprehensive dental clinic, he also receives care from a general practitioner, gastrointestinal doctor, and rheumatologist at academic medical institution. He is married, has three children, and is currently working as a full-time engineer.

WHAT WAS MR. PATEL’S MEDICAL AND DENTAL HISTORY?

The medical and dental history documents indicated that Mr. Patel is a former smoker who quit smoking 10 years ago. Medically, he was being treated by a gastrointestinal doctor, a rheumatologist, and a general practitioner for his newly diagnosed Ankylosing Spondylitis and Crohn’s disease.

Mr. Patel described that he was currently experiencing dental pain in his lower left jaw, complaining of hypersensitivity and a bad taste in his mouth. He mentioned that his teeth were sensitive to hot, cold, pressure, and sweets along the gum line of his lower teeth. He also claimed to have had previous endodontic, orthodontic, and implant treatment, and says that three of his previously RCT (root canal treatment) teeth had to be redone. On the dental history forms he wrote, “RCT not done right, I need one more immediately and 2 crowns ASAP.”

WHAT WAS THE TREATMENT PLAN FOR MR. PATEL AND WHAT CLINICAL CARE WAS DELIVERED?

In March of 2015, Mr. Patel received a comprehensive radiographic and clinical evaluation. Mr. Patel was diagnosed with generalized inflammation of the gums (gingivitis), generalized gingival recession, a recurrent decay on upper left incisor and a fractured crown on lower left molar tooth. At his treatment planning

appointment, he was offered a treatment plan including, dental cleaning and fluoride application on exposed root surfaces due to sensitivity, a direct composite restoration on maxillary left incisor tooth and replacement of a crown on lower left molar tooth. When Mr. Patel brought up recurring pain and hypersensitivity on eating sweets on lower second premolar tooth an endodontist on staff is called in for consultation. The endodontist determined that the tooth was responding normally to cold stimuli, tooth was vital and did not warrant root canal treatment. The endodontist advised replacement of existing composite restoration on lower left premolar tooth anticipating a recurrent decay below the restoration that is not clinically obvious. Mr. Patel received all of the recommended dental care however pain and sensitivity on lower left premolar tooth persisted. Therefore, Mr. Patel decided to seek care for his sensitive lower left premolar elsewhere.

WHAT BROUGHT MR. PATEL BACK TO THE DENTAL CLINIC?

Ultimately, more pain in Mr. Patel's teeth brought him back to our dental clinic two years later. He received another radiographic and clinical examination to reevaluate the current status of his oral health. It was noted that the patient had 12 additional RCT teeth in his panoramic radiograph since his last visit to our clinic, and yet, he continued complaining of other tooth-borne pain that he wanted remedied via root canal therapy. After seeing Mr. Patel compiling his current and previous dental and medical records, his dentist stated that 12 additional RCT and continued dental pain were more than routine dental care. The patient had scarce evidence of previous decay in his dentition and had only had 2 fillings in his lifetime. All of these signs pointed to a much bigger, more centrally located problem than typical tooth pain. An orofacial pain specialist was brought for consultation. Following consultation, it was determined that Mr. Patel was suffering from chronic trigeminal neuropathy as part of a widespread pain disorder and associated comorbidities including Crohn's disease, atopy, and Ankylosing Spondylitis. At this point, further invasive dental therapies were ill-advised, despite the patient's pleas for treatment.

HOW DID MR. PATEL'S TREATMENT PROCEED FROM HIS UNIQUE DIAGNOSIS?

Mr. Patel's dentist and consulting orofacial pain specialist wrote and sent a referral letter to Mr. Patel's gastroenterologist, rheumatologist, and general practitioner who were treating him for his newly diagnosed ankylosing spondylitis and Crohn's disease. The contents of the letter suggested that a low dose Neurontin (gabapentin) be prescribed as an initial therapy for his trigeminal neuropathy. Subsequent treatment with a tricyclic antidepressant was recommended if pain symptoms persisted because monotherapy has only been proven to be successful in less than half of patients with chronic neuropathic pain (Seto et.al., 2011). Tricyclic antidepressants are believed to have independent analgesic effects as well as an

ability to relieve the depressive symptoms associated with chronic pain (Rosenquist et.al., 2019).

HOW DID MR. PATEL RESPOND TO GABAPENTIN THERAPY?

Mr. Patel's general practitioner reviewed Mr. Patel's existing medications and made adjustments as needed. In addition, Mr. Patel was referred to a neurologist and was prescribed a low dose of gabapentin to treat his chronic orofacial pain. After one month of taking the medication, Mr. Patel stated that 80-90% of his pain was gone. He also said that his overall mood had improved and that his family noticed a difference in his attitude at home.

WHAT ABOUT THE 10-20% OF PAIN THAT REMAINS?

Now that an interprofessional system of care has been established and communication has been initiated among the health professionals, Mr. Patel's pain can be closely monitored to determine if tricyclic antidepressant therapy should be added to his current treatment for the neuropathic pain. Until his pain has been addressed, further dental treatment is still ill-advised. The biggest problem that presents itself from this point forward is that Mr. Patel feels better but is not "healed" and might never be. There are many different causes of orofacial pain, and given the wide range of etiologies, management is also varied so that diagnosis is important in order to use the correct care pathway (Zakrzewska JM, 2013). Unfortunately, treatment of his chronic facial pain with continuous root canal therapy or surgery is not only unnecessary but could also make his problems worse. A difficult conversation may be in order if Mr. Patel presents back to the dental clinic asking for more root canal treatment to treat his facial pain. Telling Mr. Patel that "everything will get better eventually" is an empty promise that cannot be kept. Communication between the health care professionals providing care to Mr. Patel along with subsequent communication to Mr. Patel is very important in the management of his chronic pain. Mr. Patel needs to be assured that his providers understand that he has significant orofacial pain and they are doing everything possible to help manage it. As long as this communication exists, Mr. Patel is more likely to feel reassured that further dental treatment could exacerbate his facial pain. General dental and medical practitioners must appreciate the risk of exacerbation of associated psychological distress stemming from this type of chronic pain and the importance of psychological assessment and counseling for this pain at an early stage (Madland and Feinman, 2001).

HOW CAN WE LEARN FROM MR. PATEL'S CASE?

Healthcare professionals need to consider chronic facial pain disorders and seek consultations in order to prevent unnecessary dental treatments on patients with chronic pain. For instance, in Mr. Patel's case, his first painful symptoms could have been the result of atypical regional neuropathic pain that was misdiagnosed as

a dental pathology, leading to invasive procedures causing PIFP and/or painful traumatic trigeminal neuropathy (Figure 1, Benoliel and Raul, 2017).

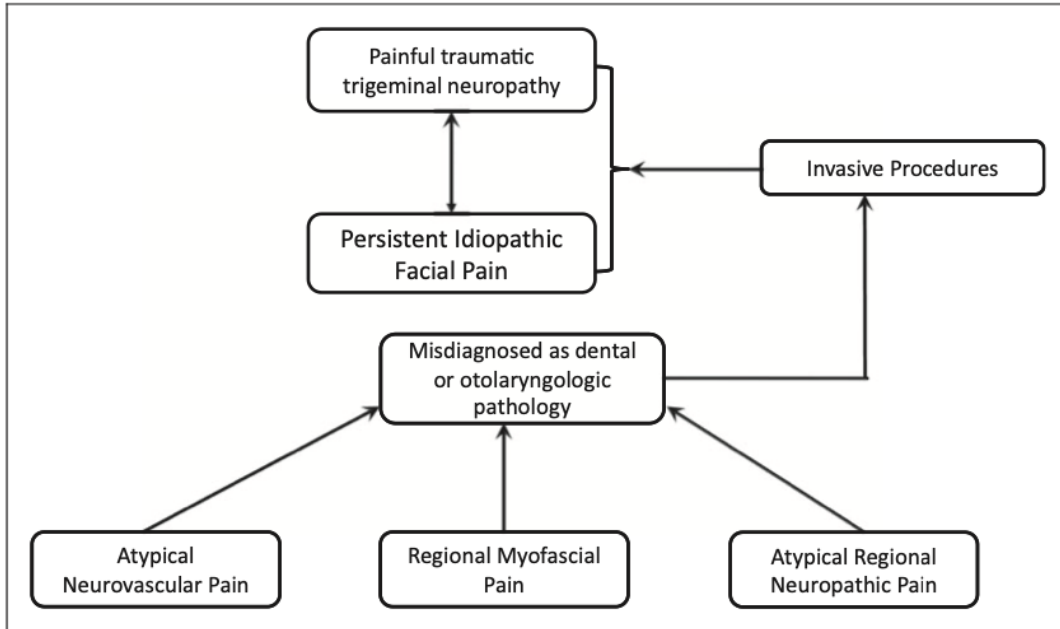


Figure 1. Persistent idiopathic facial pain (PIFP) established as a result of misdiagnosed orofacial pain entities (e.g. atypical neurovascular pains, regional myofascial pain and rarer or other neuropathic pain syndromes) that undergo invasive dental, otolaryngologic or neurosurgical interventions. In this scenario, PIFP may be the result of neuropathic mechanisms on one end of a spectrum, with definitive painful traumatic trigeminal neuropathy at the other.

While there is certainly progress being made on the front of an interdisciplinary approach to healthcare, no single specialty receives the training needed to provide differential diagnoses and treat these pain disorders, and there is still a need for more interdisciplinary clinics and interprofessional training programs in the dental and medical undergraduate curricula (Madland and Feinman, 2001). An interprofessional approach to Mr. Patel’s dental and medical care will proceed as his chronic trigeminal neuropathy is treated and his other medical and dental needs are met.

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