

A Case Report on "Meth Mouth": Rampant Dental Caries Associated with Methamphetamine Abuse

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Abstract

Background: Methamphetamine abuse has emerged as a significant public health concern globally, with its profound implications for oral health. The term "meth mouth" describes the characteristic pattern of rampant dental caries, tooth wear, and the periodontal disease observed in chronic methamphetamine users [1][2]. This case report documents a classic presentation of the meth mouth in a young adult male, highlighting the clinical features, diagnostic approach, and its treatment considerations.

Case Presentation: A 22-year-old male patient presented to the Department of Oral Medicine and Radiology at Al Azhar Dental College, Thodupuzha, with the complaints of generalized dental pain and severely decayed teeth. The patient had reported a history of methamphetamine use via inhalation of fumes and nasal snorting. Intraoral examination revealed the extensive cervical caries affecting all teeth, with gross decay of the mandibular molars in the fourth quadrant. The clinical presentation of the patient was also consistent with the characteristic features of meth mouth, including the rampant caries, poor oral hygiene, and also evidence of xerostomia [1][3].

Conclusion: Meth mouth represents a challenging dental condition which require comprehensive multidisciplinary management. Early recognition of the oral manifestations of methamphetamine abuse is crucial for the timely intervention and also prevention of further deterioration [4]. Dental practitioners should also maintain a high index of suspicion for substance abuse in patients presenting with unexplained rampant caries and also consider appropriate medical referrals.

Keywords: *Meth mouth, methamphetamine abuse, rampant caries, substance use disorder, oral medicine*

1. Introduction

Methamphetamine (METH), commonly known as "crank," "ice," "crystal," "glass," or "speed," is a highly addictive synthetic psychostimulant that can be administered orally, smoked, snorted, or injected [1]. The World Health Organization reports that more than 35 million people worldwide use methamphetamine, making it the third most common substance use disorder globally after the commonly used cannabis and opioids [5].

The oral manifestations of chronic methamphetamine abuse are collectively referred to as "meth mouth," a term which describes the severe and rapidly progressive dental caries, tooth wear, and the periodontal disease observed in users [2][3]. The pathogenesis of meth mouth is multifactorial, which involve drug-induced xerostomia, prolonged periods of poor oral hygiene, high consumption of refined carbohydrates and also carbonated beverages, bruxism, and the acidic nature of the drug itself [6][7].

This case report presents a classic presentation of the meth mouth in a 22-year-old male patient, with the aim of raising awareness among the dental practitioners about the recognition and management of this increasingly prevalent condition [8].

2. Case Presentation

2.1 Patient Demographics and History

A 22-year-old male patient reported to the Department of Oral Medicine and Radiology at Al Azhar Dental College, Thodupuzha, with complaints of generalized dental pain, difficulty in chewing food and poor aesthetics. The patient's medical history had also revealed a two-year history of methamphetamine use, with the drug being administered via the inhalation of fumes as well as nasal snorting. The patient admitted to daily use of the substance and reported that a progressive deterioration of his oral health since initiating drug use.

The patient reported that he was experiencing persistent dry mouth (xerostomia), which he managed by consuming large quantities of carbonated beverages on a daily basis. He also reported episodes of jaw clenching and also discomfort in the temporomandibular joint area upon waking. The patient had not sought any prior dental care during the period of drug use.



Figure 1: Intraoral view showing generalized cervical caries affecting the anterior teeth.



Figure 2: Intraoral view demonstrating gross decay of the mandibular molars in the fourth quadrant.



Figure 3: Panoramic radiograph demonstrating rampant dental caries with gross decay of the fourth quadrant molars.

2.2 Clinical Examination

Extraoral examination revealed no significant findings, and the patient appeared well-nourished without any of the cutaneous lesions suggestive of an intravenous drug use. Intraoral examination, however, revealed that poor oral hygiene with a generalized plaque and calculus deposit, alongside the rampant dental caries affecting multiple teeth with a characteristic predilection for the cervical areas. Cervical caries was observed on all teeth, extending in some cases to involve the root surfaces. The fourth quadrant molars exhibited gross decay, with teeth 46,47 and 48 showing an extensive coronal destruction extending into the pulp chamber. Additional findings had included generalized enamel erosion and tooth wear consistent with bruxism, gingival inflammation together with bleeding on probing, and xerostomia, which was confirmed by a reduced salivary pool and a dry oral mucosa.

2.3 Radiographic Examination

Panoramic radiograph revealed extensive radiolucencies involving the coronal and cervical aspects of multiple teeth, with the gross decay of the mandibular right molars (teeth 46,47 and 48) showing radiolucencies extending to the pulp chambers. Interproximal and occlusal carious lesions were also observed in the remaining dentition. There was no evidence of any significant periodontal bone loss, and the maxillary sinuses and temporomandibular joints appeared normal.

3. Discussion

3.1 Pathophysiology of Meth Mouth

The characteristic dental destruction observed in the methamphetamine users results from a combination of different factors [3][6]. Methamphetamine helps stimulate the alpha-adrenergic receptors in the vasculature of the salivary glands, causing a vasoconstriction and a reduced salivary flow [5]. This leads to the decreased buffering capacity and impaired clearance of acids, significantly increasing the caries risk [5][10]. Methamphetamine users also often consume large quantities of carbonated beverages which helps them alleviate dry mouth symptoms, providing a substrate for the acidogenic bacteria and also promoting enamel demineralization [4][7]. The stimulant effects of the drug also helps induce hyperactivity of the masticatory muscles, leading to bruxism and excessive tooth wear [5][8]. Prolonged periods of neglect due to the drug's effects on the behaviour and cognition contribute to plaque accumulation and also periodontal diseases [2][6]. Furthermore, methamphetamine itself is acidic, and its oral ingestion or smoking can also contribute to direct enamel erosion [7].

3.2 Clinical Pattern of Caries

The caries pattern in meth mouth is very distinct, with a predilection for cervical and smooth surfaces of teeth [9], interproximal surfaces of anterior teeth [3], and multiple teeth affected simultaneously, often with a rapid progression [1]. The clinical presentation of our patient—with cervical caries affecting all the teeth and also gross decay of the posterior molars—is highly consistent with the described pattern of meth mouth [3][9].

3.3 Diagnostic Considerations

The diagnosis of meth mouth is primarily clinical, supported by the characteristic pattern of rampant caries [1], history of the methamphetamine use [2], evidence of xerostomia [5], presence of bruxism with tooth wear [8], and poor oral hygiene [6]. Dental practitioners should maintain a high level of suspicion for substance abuse when they encounter young patients with an unexplained rampant dental caries [4]. Patients may be very reluctant to disclose drug use due to fear of its stigma or legal consequences, necessitating a non-judgmental and truly empathetic approach [3].

3.4 Treatment Considerations

The management of patients with meth mouth presents a significant challenge. Immediate management includes a comprehensive oral examination and review of radiographs, assessment of salivary flow, identification of the teeth requiring extraction versus restoration, emergency management of the pain and infection, and nutritional and dietary counselling [7]. Regarding the restorative considerations, severely decayed teeth with any pulp involvement may also require endodontic treatment or even extraction [1], and the extensive nature of the caries often necessitates a full-mouth rehabilitation approach for these patients[8]. Oral rehabilitation may also involve the conventional restorations, crowns, or implant-supported prostheses [1], though the financial considerations often significantly restricts the treatment planning [9]. Special precautions must also be taken, including the use of local anesthetics without vasoconstrictors (e.g., 3% mepivacaine) if the patient has used methamphetamine within the last 24 hours due to the high risk of cardiovascular complications [7], while nitrous oxide and narcotic analgesics should be used with high caution [7], and consultation with the patient's physician is also advisable for comprehensive care. Long-term management also involves referral for substance abuse treatment [4], regular dental recall appointments (though compliance may be challenging) [1], use of a salivary substitutes or

pharmacologic agents (e.g., pilocarpine) for xerostomia management, topical fluoride applications, with dietary modification and oral hygiene instruction are recommended [7].

4. Conclusion

This case report illustrates the classic features of a meth mouth in a young adult male with a two-year history of methamphetamine use via inhalation and snorting. The presentation of rampant cervical caries affecting all the teeth, with gross decay of the posterior molars, highlights the severe and rapidly progressive nature of the dental destruction associated with chronic methamphetamine abuse[3][9].

Meth mouth represents a growing public health concern requiring increased awareness among all dental practitioners[8]. Early recognition of the oral manifestations of methamphetamine abuse can also facilitate timely intervention and an appropriate referral for substance abuse treatment[4]. Comprehensive management requires a multidisciplinary approach involving restorative dentistry, oral medicine, and general medicine[9].

The dental professional has an important role in identifying the patients with substance use disorders and also contributing to their overall health and well-being. By maintaining a non-judgmental approach and also understanding the unique challenges presented by this patient population, dental practitioners can effectively provide care while promoting recovery and prevention of further disease progression[3][7].

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