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Prevalence of post-traumatic stress disorder in patients with chronic idiopathic facial pain

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SUMMARY. **34 patients with chronic idiopathic orofacial pain were assessed by a structured clinical interview for diagnosis of mental disorders according to the Diagnostic and Statistical Manual for Mental Disorders (DSM-III-R). Five (15%) had a history of post traumatic stress disorder (PTSD) which coincided with the pain onset. The majority of these PTSD sufferers also had a personality disorder. The implications of these findings in the diagnosis and management of post-traumatic chronic TMJ pain syndromes is discussed.**

INTRODUCTION

Chronic idiopathic orofacial pain is a common problem. It consists of facial arthromyalgia, atypical facial pain, oral dysaesthesia and atypical odontalgia. These conditions can occur simultaneously or sequentially in the same patients. The psychological disturbances associated with chronic facial pain have attracted a considerable attention. It is known that the psychological state of an individual may produce pain, increase the severity with which it is felt or even diminish the severity. Furthermore, there has been a substantial body of work to show that chronic orofacial pain is stress related (Lefer, 1966; Fine, 1971; Feinmann & Harris, 1984). Therefore, recognition of stressful stimuli responsible for the psychosomatic component operative in a pain condition is essential for establishing both diagnosis and appropriate therapy.

A psychiatric syndrome which has in the last decade become more clearly defined is the 'post-traumatic stress disorder' (PTSD) (American Psychiatric Association, 1987). The essential feature of PTSD is the development of characteristic symptoms following a psychologically distressing event that is outside the range of usual human experience. The stressor producing this syndrome would be markedly distressing to almost anyone, and is usually experienced with intense fear, terror and helplessness. Examples would be assault, a road traffic accident or some form of mass accident. The characteristic symptoms involve re-experiencing the traumatic event, the avoidance of stimuli associated with the event or numbing of general responsiveness, and increased arousal (Table 1). It has been shown that patients demonstrating this psychological symptoms carry a concurrent increased risk of physical disorders, such as peptic ulceration, asthma and hypertension, all of which have traditionally been thought of as, in part, stress-related disorders (Davidson *et al.*, 1991).

During the course of a study of metabolic and psychiatric disturbances in patients with chronic idiopathic orofacial pain, a structured clinical interview for the diagnosis of mental disorders (SCID) (Spitzer *et al.*, 1989) based on the diagnostic and statistical manual for mental disorders (DSM-III-R) of the American Psychiatric Association (1987), revealed a number of patients suffering from post-traumatic stress disorder (PTSD). The onset of this coincided with the onset of the pain. A review of the literature

Table 1 – Diagnostic criteria for post-traumatic stress disorder according to DSM-III-R

A. The person has experienced an event that is outside the range of usual human experience and that would be markedly distressing to almost anyone
B. The traumatic event is persistently re-experienced in at least one of the following ways:
   1. Recurrent and intrusive distressing recollections of the event
   2. Recurrent distressing dreams of the event
   3. Sudden acting or feeling as if the traumatic event was recurring
   4. Intense psychological distress at exposure to events that symbolize or resemble an aspect of the traumatic event
C. Persistent avoidance of stimuli associated with the trauma or numbing of general responsiveness, as indicated by at least three of the following:
   1. Efforts to avoid thoughts or feelings associated with the trauma
   2. Efforts to avoid activities or situations that arouse recollections of the trauma
   3. Inability to recall an important aspect of the trauma
   4. Markedly diminished interest in significant activities
   5. Feeling of detachment or estrangement from others
   6. Restricted range of affect
   7. Sense of a foreshortened future
D. Persistent symptoms of increased arousal as indicated by at least two of the following:
   1. Difficulty falling or staying asleep
   2. Irritability or outbursts of anger
   3. Difficulty concentrating
   4. Hypervigilance
   5. Exaggerated startle response
   6. Physiologic reactivity upon exposure to events that symbolize or resemble an aspect of the traumatic event

did not show any report of PTSD with facial pain. Muse (1985) was the first to describe criteria for the diagnosis of 'stress related post-traumatic chronic pain syndrome'. He applied DSM-III of the American Psychiatric Association (1980) criteria for PTSD to 64 patients in a pain clinic and found that 6 (9.5%) suffered a corresponding verifiable trauma-induced stress reaction during the onset of the pain condition, although in no case was this craniofacial pain.

In this paper, we report the psychiatric disturbances observed in our patients including the prevalence of 'stress related post-traumatic chronic pain syndrome'. The contribution of the correct diagnosis of this condition to the management of the patient is discussed.

MATERIALS AND METHODS

34 patients (F:M = 30:4, age 40.2 ± 14.5 years) who had suffered from an orofacial pain condition of at least 6 months duration (mean 5.6 ± 5.5 years, range 0.5 25 years) for which no primary structural pathology was found filled in the SCID self report personality questionaire before attending the interview. This is part of a structured clinical interview for the diagnosis of mental disorders (SCID) in order to assess current and previous incidence of psychiatric disorders according to the criteria set by DSM-III-R. Assessment of PTSD was done by an additional structured interview obtained from the Biometrics Research Department of the New York State Psychiatric Institute. The following case reports illustrate the presentation of 'stress related post-traumatic chronic pain syndrome', the diagnosis of which might not be initially evident without a thorough interview. The case reports are both examples of a pre-existing psychopathological condition, perhaps increasing susceptibility to the development of PTSD and pain. The first case was referred to our pain clinic early in the course of the condition. However, the second case had undergone unnecessary multiple restorative and surgical treatment, due to a failure in identification of the condition.

Case report 1

A 52-year old female patient presented to the pain clinic in 1986 with pain affecting the right TMJ, cheek, nose and the right side of the head which started 2 months after a car accident 1 year previously. She had been the driver of a car which was hit from behind and as a result she sustained a whiplash injury. There had been no loss of consciousness or evidence of head injury. She recalls that after the accident she became very depressed and needed counselling. She felt a lot worse when she was in a car or in a situation that reminded her of the accident for a number of months afterwards. She avoided driving for 2 years. Due to persistence of pain after the accident, she consulted an ear, nose and throat specialist and had her sinuses investigated, and saw a neurologist who could find no abnormality. Initial examination did not reveal any structural pathology and a diagnosis of facial arthromyalgia and atypical facial pain was made. She was depressed and was treated by the liaison psychiatrist. The psychiatric history revealed that the patient had a deprived childhood. She had suffered from a major depressive episode after her mother's death when she was 19 years old and has been chronically depressed ever since. A diagnosis of stress-related psychogenic facial pain was made and she was put on a tricyclic antidepressant for the relief of her depressive symptoms. This gradually improved her condition. When the patient was last seen 6 years after the accident, her pain and also the distressing symptoms of PTSD had disappeared. Her depression, although in remission had not resolved completely. The structured clinical interview not only confirmed the occurrence of past PTSD and the current dysthymia, but also revealed the diagnosis of a dependent personality disorder.

Case report 2

A 31-year old female presented with a 9-year history of a dull ache affecting the alveolar ridge in the region of the upper left lateral incisor which had been extracted 5 years previously. Pain was provoked by tiredness and alcohol and there were no relieving factors. She also suffered from migraine, irritable bowel and pruritus. The history revealed that 9 years before presentation she suffered an unprovoked attack and was punched in the face which resulted in a coronal fracture of the upper left lateral incisor tooth. She recalls that after this incident she became severely depressed and was unable to return to her work for 4 years. Her dentist restored the tooth by provision of an artificial crown. However, the pain persisted. She underwent three apicectomies and exploration of the affected area during the subsequent 3 years and eventually the tooth was removed in an attempt to cure the pain. A bridge was made to restore the gap, however she was still in pain. A second bridge was made later which did not result in any improvement. At this time, the patient was referred to our pain clinic. Her past medical history was insignificant. She was single, lived with her parents and had no brothers or sisters. She did clerical work. Clinical and radiographic examination did not reveal any significant abnormality and a diagnosis of atypical odontalgia was made. The psychiatric interview confirmed the past PTSD and major depressive episode. It also revealed that she suffered from generalized anxiety disorder and also a panic disorder. The personality assessment was indicative of the presence of a passive-agressive and a borderline personality disorder. As she was already under care of another centre for stress management, and was reluctant to take medication, a full explanation of her condition was given, and arrangements were made for her to have regular review by the psychiatrist.

RESULTS

Figure 1 shows different orofacial pain conditions diagnosed in the patients. The clinical diagnosis of the orofacial conditions in PTSD patients included the full spectrum of psychogenic facial pain conditions including atypical odontalgia, atypical facial pain and facial arthromyalgia. Two of the subjects diagnosed as suffering from PTSD had suffered a whiplash injury which was believed to be responsible for the temporomandibular joint pain. Some patients suffered from more than one clinical or psychiatric condition. Among the psychiatric diagnoses (Table 2) a lifetime history of major depression was the commonest (50%). This was followed by PTSD (15%).

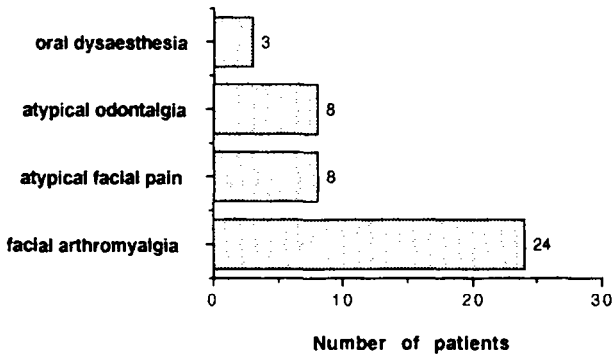

Fig. 1 – Chronic orofacial pain conditions in 34 patients. 7 patients suffered from more than one clinical syndrome.

Table 2 – Psychiatric diagnoses in patients with chronic idiopathic orofacial pain

	Current	Past	Total
Major depression	3	15	17 (50%)
Dysthymia	2	–	2 (6%)
Bipolar disorder	1		1 (3%)
Bulimia neurosa	1	–	1 (3%)
Anorexia nuerosa	–	1	1 (3%)
PTSD	2	3	5 (15%)
Alcohol dependence	1	–	1 (3%)
Panic disorder + agoraphobia	1	–	1 (3%)
Panic disorder – agoraphobia	–	1	1 (3%)
Generalized anxiety disorder	1	–	1 (3%)
Psychotic disorder NOS	1	–	1 (3%)
Personality disorders:*			
Avoidant personality disorder			2 (6%)
Dependent personality disorder			2 (6%)
Paranoid personality disorder			2 (6%)
Passive aggressive PD			1 (3%)
Borderline personality disorder			1 (3%)

*According to DSM-III-R, personality disorders are inflexible maladaptive traits of perceiving and relating to and thinking about the environment and oneself. They are often recognizable by adolescence and continue through most or all of adult life. Therefore, a classification into current and past is non-applicable.

2(6%) were experiencing the symptoms of PTSD currently and 3(9%) had suffered from PTSD in the past. Four (80%) of PTSD patients also had a personality disorder, and a similar proportion had a history of depressive illness. 15(44%) had a clear lifetime history of psychiatric illness, and 25(74%) had no current psychiatric illness.

DISCUSSION

Although the PTSD has been recently defined, the concept has been recognized for a long time. Records from combat, transport accidents and reports after assault or rape describe a common core of symptoms, the predominant one being the re-experiencing of the traumatic events. Some data suggest that tests of biological response to specific stimuli can accurately differentiate PTSD from other anxiety syndromes, depression and pathological grief which argues for a distinct syndrome (Jackson, 1991). For instance the startle response has been shown to be different in Vietnam Veterans with PTSD from normal controls (Butler *et al.*, 1990). Other psychiatric conditions however, often coexist with PTSD and may themselves be brought on by life events. So the notion of a number of inter-relating post-traumatic disorders emerges.

Due to the traumatic aetiology of many pain conditions, a substantial proportion of patients seen in any pain clinic may suffer from post-traumatic stress syndromes. However, this has not been recognized until recently due to the absence of well defined diagnostic criteria and a lack of objective methods of assessment of psychiatric morbidity. PTSD is still a diagnosis which is frequently missed even by psychiatric professionals (Davidson & Smith, 1990). Davidson (1989) has outlined four main reasons why a diagnosis of PTSD might be overlooked: (a) not asking the patient about experiences of trauma; (b) patients' reluctance to disclose painful material; (c) physicians' discomfort in discussing events which might be gruesome, horrifying or unimaginable and (d) the fact that chronic PTSD often presents with non-specific symptoms such as headache, insomnia, irritability, depression, tension, substance abuse, interpersonal or professional dysfunction.

The prevalence of PTSD in our study is 15%, this compares to 9.5% reported by Muse (1985) in a study of 64 chronic pain patients. The point prevalence of PTSD in the general population is about 1% (Jackson, 1991). Thus the prevalence of this syndrome in the present study is substantial when a comparison is made of its relative ranking among other psychological diagnoses associated with chronic pain. Shepherd (1990) in a study of psychiatric morbidity following personal violence, reported behavioural changes in two thirds of victims 6 months after assault, particularly the avoidance of locations of violence which is also frequently observed in PTSD sufferers.

This study raises a number of questions about stress related post-traumatic chronic pain.

1. What is the real frequency of this syndrome in the chronic pain population?

The present study provides some idea on the prevalence of the condition. However, it is possible that patients with chronic facial pain may differ qualitatively from other groups of pain patients. For instance, Atkinson *et al.*, (1991) in a study of patients with chronic low back pain (CLBP) found that 64.9% had a history of alcohol abuse and suggested that alcohol use disorders rather than depression may increase the risk of developing CLBP. Whereas in our study there was only 1 (3%) case of alcohol abuse. Furthermore, departments of maxillofacial surgery may care for a significant percentage of latent cases amongst the patients who have sustained an assault or a road traffic accident, the commonest causes of facial injury.

2. However, if one considers the high frequency of traumatic incidents, why is the prevalence of PTSD is relatively low?

One explanation is that the complex responses to trauma are influenced by culture, beliefs and social

support (Lima *et al.*, 1990). Several studies indicate that pre-existing psychopathological conditions predispose to the development of the PTSD. Davidson *et al.* (1991) in an epidemiological study showed that patients with PTSD had significantly higher family history of psychiatric illness, parental poverty, child abuse and separation or divorce of parents. In our study the majority (80%) of the PTSD sufferers also had personality disorders However, the disorder can develop in people without any such pre-existing conditions, particularly if the stress is extreme. Nevertheless, it has been suggested that the psychiatric morbidity following an accident is largely dependent on a subjective response to the event and the amount of distress it engenders, as opposed to the nature of traumatic event itself (Horowitz *et al.*, 1979; Feinstein & Dolan, 1991).

3. What is the relation between PTSD, pain onset and its chronicity?

The association of PTSD and pain, suggests a causal role for PTSD in pain onset. The symptoms of PTSD usually begin immediately or soon after the trauma, although the re-experiencing symptoms may develop after a latency of months or years. It is possible that pain is the result of re-experiencing the pain associated with the traumatic event. Davidson *et al.* (1991) reported that PTSD sufferers are 90 times more likely to suffer from a somatization disorder than the general population which suggests a connection between PTSD and the process of conversion. Other than the stress disorder, other factors such as 'compensation neurosis' or learned pain behaviour may also contribute to the chronicity in certain cases (Muse, 1985). An important diagnostic problem of medico-legal significance is the neuropathic nature of some post-traumatic psychogenic facial pains which resemble causalgia. That is a persistent burning pain with associated flushing and oedema. The underlying pathophysiological mechanism of such causalgic pains is believed to be abnormal sensitization of damaged sensory nerves to sympathetic stimulation and to a variety of mechanical, thermal and chemical stimuli (Koltzenburg & McMahon, 1991). Furthermore, if the patient has sustained a head injury, careful attention should be given to the possibility that some, or all, of the observed PTSD symptoms might stem from an organic lesion (Roth, 1988).

4. What is the significance of the 'stress related post-traumatic chronic pain syndrome' in patient management?

If PTSD contributes to a painful condition then therapy should be oriented towards the resolution of the stress disorder. Effective treatment entails use of psychotropic medication (Davidson, 1992). Tricyclics and monoamineoxidase inhibitors have been the most widely studied drugs, and their effect increases with duration of treatment. Pharmacotherapy is probably most effective when administered as part of a broadly based treatment plan. Behavioural treatment directed at exposure to avoided situations or thoughts is often a critical step in treatment (Richards & Rose, 1991). Muse (1986) demonstrated the efficacy of both pharmacological and non-pharmacological desensitization in alleviating anxiety and depression associated with the syndrome. However, these therapeutic approaches do not relieve the associated pain in all cases. This suggests the contribution of other factors, such as compensation neurosis and a learned pain behaviour. However, elimination of anxiety and depression should be beneficial in promoting an early return to increased levels of psychosocial and vocational functioning and the ability to cope with chronic pain.

5. Is every area of the body capable of becoming involved in a stress related post-traumatic chronic pain syndrome or is the face particularly at risk?

The face is one of the most complex areas of the body in terms of pain presentation. The intricate innervation and the concentration of all the special senses give the area a unique significance. In addition the face has a special significance which arises from its emotional and social importance. A major traumatic incident involving the face frequently results in the affected area becoming the focus of the attention of the patient, and if there is a susceptible psychiatric make-up, the affected site may become the focus of unresolved conflicts.

In our study various orofacial structures were involved. The clinical diagnoses included atypical odontalgia, atypical facial pain and also facial arthromyalgia including that associated with whiplash injury. The last condition has frequently been attributed to a physical internal derangement of the meniscus brought about during the traumatic deceleration of the head (Weinberg & Lapointe, 1987). Two cases of PTSD had been diagnosed as this whiplash TMJ internal derangement. However, there may be a substantial proportion of these patients, in whom a hidden stress element plays a greater role in the chronicity of the condition than the simple mechanical disturbance. In these cases, therapy should always be directed towards the resolution of the stress disorder.

A means of assessing the subjective distress following a traumatic accident is the use of the Impact of the Event Scale (IES) as suggested by Horowitz *et al.* (1979). IES is a self-reported questionaire which can be easily completed by the patients. This must be used soon after the event and its administration at regular intervals helps to assess the patient's psychological response and will indicate the course of PTSD symptoms if they develop. If the IES score remains unchanged then referral to a psychiatrist for management of the stress problem is indicated.

In conclusion, it is important to consider PTSD in all patients with persistent post-traumatic pain and it may take more than one session to confirm one's early diagnostic suspicion. The assumption that TMJ pain and dysfunction is only of mechanical or neuropathic origin is unhelpful. Furthermore surgical management alone appears to intensify the pain and render it intractable. Clinicians should bear in mind

that PTSD can be chronic or recurrent in a high proportion of those who develop it (Kluznick *et al.*, 1986; Zeiss & Dickman, 1989). Therefore, management needs to include long term follow up and support of these patients. Shepherd (1990) points out that the more victims who can talk and receive support, the fewer there will be who need longer and more intensive help.

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