

Self-Inflicted Gingival Trauma in a 13-Year-Old Girl: What are the Psychosocial Issues that May Underlie this Behaviour?

Iain LC Chapple, Khalid Malik, Ruth Freeman

A 13-year-old girl was referred by her orthodontist for pre-orthodontic management of her gingival condition that, despite the implementation of appropriate and targeted oral hygiene measures, had not improved and was inconsistent with her level of plaque control. We shall call her by a pseudo name, "Jane".

Key words: self-inflicted trauma, factitious injury, psychosocial, behavioural analysis

The request

Dear Professor Freeman,

I would be grateful for your appraisal of any psychosocial or behavioural issues that we should consider when attempting to manage the case highlighted below. In particular, would commencement of orthodontic therapy improve her self-esteem and perhaps help with our management of her gingival condition?

Professor Iain Chapple

The Presenting Complaint

At initial consultation 18 months ago Jane complained that her gums were red and swollen and, despite her best efforts with oral hygiene, they bled when brushing.

History of the Complaint

The bleeding had started 12 months earlier, but there was no pattern consistent with her menstrual cycle which had started two months prior to our consultation. There was no history of gastro-intestinal disease or symptoms, and she reported that her bowel movements were normal and regular in form and colour. There was no history of nausea

or vomiting or of similar lesions elsewhere on her skin or genital mucosa.

Social History

Jane is at school, where she states that she is happy. She attended the consultation with both her parents and the history was taken in the presence of them. She is a non-smoker and non-drinker, does not use recreational drugs and enjoys playing football.

Family History

There was no family history of periodontal problems, or indeed of medical problems.

Medical History

Her medical history was unremarkable, except for a tonsillectomy and adenoidectomy at the age of five. She had experienced a gingival biopsy by a local oral surgeon six months earlier to investigate her gingival lesions, but this yielded no specific histological diagnosis.

Extra-Oral Examination

Jane is a very tall girl for her age. She seemed a little withdrawn and largely communicated by grunting, avoiding eye contact with me at all times. It was difficult to elucidate a history from her alone and her mother and father frequently volunteered the required information.

She had a pale complexion, with mild teenage acne and heavily bitten fingernails. There were some viral warts on her fingers and her hair was greasy and tied back with an elastic band. Her expression remained passive and serious throughout the consultation and I could not elicit a smile or more than one-word answers. She wore training shoes and a tracksuit. There was no lymphadenopathy and her temporomandibular joints were clinically normal.

Intra-Oral Examination

Her dental development was advanced for a 13-year-old, with all permanent teeth erupted except the third molars. Her mouth was well cared for, with no caries or restorations and moderate plaque control. She lives in a fluoridated area and there was mild flecking of her incisor enamel. There was mild anterior crowding with labially positioned maxillary canines that were still a little high in the arch, and the lateral incisors were palatal to these.

There was no pocketing associated with her permanent first molar teeth or incisors or indeed any bleeding on sulcular probing. The gingival margins were rolled and mildly hyperplastic (Fig 1), with granular areas of ulceration affecting mainly the maxillary gingivae labial to her incisor and canine teeth, but also the maxillary and mandibular first molars. The ulcerative lesions affected the marginal free and attached gingivae only, with no interproximal involvement or extension to non-keratinised oral mucosa. There was no palatal tissue involvement and the remainder of her oral mucosa was normal with no evidence of clinical pathology elsewhere.

Investigations

The recent radiographs sent by Jane's orthodontist showed no pathology, and the following clinical investigations were performed:

1. A full blood count with differential white cell count – this was to eliminate any risk of neutropaenia, leukaemia, myeloproliferative disease or myelodysplasia.
2. Haematinic investigations (serum iron, folate, ferritin) – this was to investigate the presence/absence of anaemia which can underlie gingival ulceration.
3. Serum biochemistry - to eliminate any renal or liver disease or indeed diabetes (a random glucose was performed).

4. Angiotensin converting enzyme (ACE - within serum) – to explore any risk/possibility of sarcoidosis – the granuloma's of sarcoid produce ACE.
5. Immunology to include:
 - Immunoglobulins IgG, IgA, IgM – to explore an infective aetiology
 - Complement C3 & C4 – to explore infective/inflammatory causes
 - Immunoglobulin electrophoresis – to investigate any monoclonal gammopathies (consistent with Lymphoma)
 - Immunoglobulin IgE – to investigate any atopia (allergic response)
 - Epidermal antibodies – to investigate the presence of any vesiculo-bullous disease.
 - Endomysial antibodies – to explore any underlying inflammatory bowel disease.
 - Tissue transglutaminase antibodies (IgG, IgA) – to explore the presence of coeliac disease.

Initial Management

While awaiting the results of the blood investigations, Jane was prescribed four visits with a hygienist to ensure that all remaining plaque/calculus deposits were professionally removed and also for:

- Diet analysis – involving a three-day diet sheet.
- Monitoring of plaque control and supportive care.

A biopsy was not arranged but the original histology sections were requested from the oral surgeon's biopsy six months earlier, and these were independently reported upon by our local oral pathologist.

Results of Clinical Investigations

All blood tests were normal except:

- Markedly raised IgG tissue transglutaminase at 178U/ml (normal range 0-15U/ml) (IgA was normal).
- Mildly raised total IgE at 110 ku/L (normal range 0-90 ku/L).
- Mild eosinophilia at $0.6 \times 10^9/L$ (normal range $0.04-0.4 \times 10^9/L$).

The histopathology report was consistent with the original report, which stated: "An acanthotic and hyperplastic epithelium heavily infiltrated with neu-



Fig 1 Gingival lesions at presentation associated with labial aspects of maxillary incisors, canines and first molar teeth. Palatal/lingual aspects were not involved, perhaps reflecting reduced access to finger trauma. Lesions are granular with some clinical hyperplasia and ulceration with a fibrinous coating. There is minimal plaque and the lesions do not extend to the non-keratinised oral mucosa.

trophils. The corium is fibrous with marked oedema in places and a fibrinous exudate evident. There was a florid mixed inflammatory cell infiltrate including collections of plasma cells. The features are non-specific and a further biopsy recommended after gingival inflammation has been reduced".

Differential Diagnosis

1. Coeliac disease.
2. Self-induced trauma by finger-picking + viral gingival warts.
3. Allergy.

Further Investigation

In view of the above report and the completion of the four hygienist visits a further biopsy was arranged (now 12 months ago) and the full blood count and serology repeated. The biopsy was

performed following informed consent from Jane's mother and also Jane's consent. Using 0.5ml of lignocaine with 1:80,000 adrenaline an ellipse of tissue was excised from the labial aspect of the left maxillary canine and across the muco-gingival junction to include non-inflamed mucosa. Three further visits were organised with a hygienist for supportive care.

The serology confirmed the following:

- Raised IgG tissue transglutaminase levels (121U/ml)
- -ve endomysial antibody levels.
- Normal total IgE levels.
- -ve specific IgE (<0.35 ku/L) for cat hair, grass pollen, egg, milk, wheat and house dust mites.

The histopathology was "mucosa covered with parakeratinised squamous epithelium which is acanthotic and hyperplastic in places, elsewhere



Fig 2 PA composite illustration of the same adolescent, six months post-investigation, biopsy and therapy. Lesions are worse than at initial presentation but non-progressive since the six-month recall. They appear exophytic and ulcerated.

are areas of atrophy and ulceration with a covering pyogenic membrane. The corium is fibrous and hyperplastic and oedematous in areas. There is a mixed inflammatory cell infiltrate including many neutrophils. No fungal hyphae are seen. A diagnosis of ulcerated fibroepithelial hyperplasia is evident histologically."

Current Management

Currently, the clinical picture is as illustrated in Fig 2, which is slightly worse than at presentation, but has been stable at this level for six months. The gastroenterology specialists are not prepared to perform a duodenal biopsy (for celiac disease), because despite the raised IgG tissue transglutaminase levels, endomysial antibodies are negative and IgE (wheat) is also negative.

Conclusion

Jane has been counselled at length about placing her fingers in her mouth and I have interviewed her separately from her parents, when she admitted to her oral-digit habit but denied use of recreational drugs; this, despite two biopsies and multiple investigations and interventions for her gingival condition. She remains a very withdrawn 14-year-old, who her parents don't seem to take seriously (they constantly make fun of her). She is still extremely tall and ungainly in stature and remains totally un-communicative. Our working diagnosis remains self-induced traumatic gingival ulceration + viral gingival warts. We are currently arranging for:

1. Patch-testing for common allergens (including lauryl sulphate in toothpastes).
2. Cryosurgery to her finger warts.
3. Continued supportive care.

The response

Dear Professor Chapple,

Thank you for providing me with the written details of this interesting pre-adolescent girl. From your letter I understand that you will continue to investigate Jane for an underlying systemic cause for her gingival lesions. In situations such as this it is vital to pursue any possible physical causes before diagnosing an emotional causation. In general, conditions that have a psychogenic origin tend to have a definite and recognisable course to the illness, often with a sudden onset and a stability of the symptoms irrespective of environment. In the case of Jane you indicate that you feel that these lesions may be exacerbated by behavioural issues possibly related to the onset of adolescence. It is difficult for me to be precise with regard to the causes of Jane's health behaviours as I have not had the opportunity to speak to Jane or her parents, but nevertheless I think that there are some general points that may be useful and of assistance to you in the assessment and management of Jane's gingival condition.

To begin with, I feel, it is necessary to discover exactly when this condition started: when did Jane first notice the problems with her gums – essentially what was happening to Jane and how was she feeling at the time? It is important to know exactly what was going on in Jane's life 30 months ago prior to attending your clinic. This would give some idea of whether Jane was under some stress. This will be of value, as increased stress or anxiety may be related to the gingival condition and Jane mutilating her gingivae with her finger nails – essentially why and when did this destructive behaviour begin and what were its determinants? We know very little about what was happening to Jane and as the social history was taken with her parents, Jane may have felt constrained and unable to tell you about her worries, fears and concerns. I would be interested to know how she really feels about school – does she have good friends? How does she do at school? Is she bullied? Does she have 'sleepovers'? Can she stay with friends? and so forth. I would want to know how Jane gets on with her parents and siblings – is there, was there, any-

thing at home that upset her and gave rise to the start of this unusual behaviour?

In the family history you write that there were no family periodontal or medical problems, but you do not mention if the parents were under any additional stresses. I know it is sometimes difficult for dental health professionals to discuss family matters with patients, but in this case I think it would be essential to find out how the parents get on and if there are any additional family stresses, such as financial worries, concerns about their children and in particular Jane. I would be inclined to ask Jane's parents about Jane's physical and psychological development. Specifically I would ask if Jane had been a normal birth? Did she walk and talk at the expected times? Did her toilet training go according to plan? Did she have and does she have any food fads? Were there any problems when she went to school? The answers to these questions will allow you to assess whether Jane's physical and psychological functioning is in accordance with her age and psychological development.

From your description of your interactions with Jane you report that she "seemed a little withdrawn and communicated with grunting and avoiding eye contact". I think that Jane is in the pre-adolescent phase of her personality development. Pre-adolescence is the prelude to the adolescent revolt, and during this phase there is the return of previous ambivalent behaviours. Consequently, the pre-adolescent causes disharmony at home and at school. They argue, are difficult and aggressive with their parents and parent-substitutes, such as teachers and health professionals like you. There is a tendency for the pre-adolescent to be dirty and to avoid washing and to be greedy, demanding and have an insatiable need for food and sweets. The child is usually about 11 to 14 years old. Therefore many of Jane's behaviours are exactly what you would expect from a pre-adolescent – she grunts in answer to your questions, she has increased plaque and gingivitis and she has greasy hair. Fortunately we have time on our side and with adolescence proper appearance becomes increasingly important. Toothbrushing and other grooming behaviours are increased, and I would think that Jane will be no different to others and

I would assume her gingivitis would subsequently improve.

You ask about the approach you should take with the parents. I think in general it is a good idea to interview parents and children/adolescent separately, as this allows both parties to speak freely about their worries and concerns. Anna Freud, writing about adolescence (Freud, 1949), suggested that although the adolescent is suffering it is the parents that need our support. I think that the more you discover about how the parents feel about Jane, the more you will be able to understand their apparently odd attitude towards her and provide the support they need with their adolescent daughter.

You asked specifically about orthodontic treatment, and I think you should ask Jane what she

thinks about it – does she want orthodontic treatment or do her parents want her to have it? I think that if it is Jane's decision then she will gain value from the treatment.

If you have any concerns about Jane's emotional functioning I would urge you to discuss this with her parents and to consider a referral for psychological counselling. If the parents and Jane are in agreement I would contact their general medical practitioner in the first instance.

I hope that these general points are of help in assisting you to formulate a management strategy when treating Jane and supporting her parents.

Yours sincerely,
Professor Ruth Freeman

REFERENCE

Anna Freud 1949. On certain difficulties in the preadolescent's relations with his parents. In: *Selected Writings*. Introductions by R Ekins and R Freeman. London: Penguin Books, 1998.

Reprint request:

Iain LC Chapple
Unit of Periodontology
School of Dentistry
St Chads Queensway
Birmingham
B4 6NN
UK
Tel: 00 44 121 2372808
Fax: 00 44 121 2372809
E-mail: I.L.C.Chapple@bham.ac.uk