

Smokeless tobacco: a potential health hazard for children

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Abstract

The increasing use of smokeless tobacco products in the United States may be due partly to mounting numbers of teenagers and children "going smokeless." A case is presented of two brothers (11 and 15) who used snuff for six years. Their similar history, clinical appearance, and histopathologic report are described. The most serious of the oral changes which can develop with prolonged snuff use is the potential for soft tissue dysplasias developing into carcinomas. Other problems can include habituation, periodontal destruction, and swallowing the snuff. Advertising of smokeless tobacco products is not regulated federally. Sales restrictions generally are left to the discretion of individual municipalities which may leave them unwritten or unenforced. Dentists should be aware of snuff use and its detrimental effects in teenagers and children.

The use of cigarettes, alcohol, and other drugs is known to be a practice of some adolescents and even children. The use of various forms of smokeless tobacco rapidly is finding popularity and social acceptability in both younger and more diverse population groups. In particular, snuff, once a regional, adult form of smokeless tobacco, now is used regularly by both rural and urban teenagers.¹

The practice of placing a small amount of snuff (a quid) in the oral cavity and leaving it for extended periods of time has many documented and some potentially dangerous consequences. According to Christen,² they include:

1. Bad breath
2. Decreased taste and smell sensations
3. Staining of teeth and composite restorations
4. Increased abrasion of the incisal and occlusal tooth surfaces

5. Advanced periodontal destruction and possible tooth loss
6. Soft tissue changes (possibly having carcinogenic potential)
7. Significant increases in heart rate and blood pressure.

Dentists who see adolescents and children should recognize early changes caused by and be aware of potential health hazards associated with the use of snuff and other forms of tobacco. The element of time in causing both damage and the development of habituation should be obvious. Concerns range from social acceptability to health hazards. As with the use of smoked tobacco, however, attempts to discourage use of smokeless tobacco are complicated due to the influences of the tobacco industry through its advertising, psycho-social phenomena and other factors.

Clinical Report

Late in 1982, considerable regional media attention was generated by a University of Colorado School of Dentistry study of smokeless tobacco use among teenagers. Hearing of this study, the mother of two Caucasian boys from a rural Colorado town made a self-referral to U.C.S.D. for evaluation of her sons' prolonged snuff habit.

In January, 1982, B. R. (15 years, 1 month) and R. R. (11 years, 1 month) were seen and evaluated. Each boy gave a history of about six years of snuff use (beginning in the 4th grade and in kindergarten, respectively). It had become a frequent and continuous part of their daily lives. Both estimated they used it 10-12 hours per day. Three to four times each day, a quid was placed in the mandibular buccal fold where it remained for several hours. They each used about one 1.2-oz. can of Skoal^a (R. R.) or Copenhagen^a (B. R.) each week.

^a United States Tobacco Co., Franklin Park, Ill. and Nashville, Tenn.

They had managed to keep their parents unaware of their snuff use for several years, and also had devised methods for concealing its use at school. Although the parents expressed misgivings about their sons' habit, they could not get the boys to quit. When interviewed, each boy was asked whether or not he was hooked on snuff; each admitted that he probably was addicted. Both also stated that they previously had made serious attempts to discontinue use of the snuff, but had failed.

Clinical examination revealed normal dentitions for children aged 11 and 15 years. The snuff was placed in the right mandibular vestibule of both boys, buccal to the premolar/molar region. No symptoms were reported. Both boys had hyperkeratotic, soft tissue in that area, with somewhat thickened and wrinkled alveolar mucosa. This area measured approximately 3.0 cm in greatest dimension in B. R., and 2.0 cm for R. R. (Figure 1). Each



Figure 1. Wrinkled, callus-like alveolar mucosa in right mandibular buccal vestibule of patient R. R. The lesion is in the same location where the patient placed the snuff.

lesion occurred precisely where the snuff was placed. No other abnormal findings were detected. The parents wanted to rule out the presence of any malignant or premalignant condition. Incisional biopsy was recommended and performed for both boys in the area of the soft tissue changes.

Histologic sections were prepared from the biopsy material. Both pathology reports described benign stratified squamous epithelium which was focally hyperkeratotic and acanthotic. The epithelium was supported by a connective tissue lamina propria diffusely infiltrated with chronic inflammatory cells (chiefly lymphocytes). There was no evidence of malignancy.

The parents and boys were encouraged to persist in efforts to discontinue the boys' use of snuff or to minimize use as much as possible. Regular follow-up for observation of the affected mucosal areas was recommended.

Discussion

The use of smokeless tobacco is becoming an increasingly widespread practice. Tobacco companies have enjoyed sales increases at the rate of about 11 per cent per year since 1974, and it has been estimated that there are 22 million users of smokeless tobacco in the United States alone.³ Although data are unavailable on an age breakdown among users, it seems likely that a significant portion may be teenagers and children. Indeed, an American Cancer Society pamphlet cautioning against chewing and dipping warns that "... smokeless tobacco seems to be having a renewed popularity among a few young males."⁴ While traditionally seen as an adult activity, reports in the literature as well as recent media reports have focused attention on juvenile use. Greer and Poulson¹ found a 10 per cent rate of use in more than 1,000 randomly sampled metropolitan Denver high school students. They also found minimal use by girls, but approximately 20 per cent use by boys. The cases reported herein are alarming because they may indicate a trend toward use of snuff or other forms of smokeless tobacco by increasingly younger children.

A major health concern of snuff use is development of localized tissue changes in the immediate area of quid placement. Reports have documented oral soft tissue changes ranging from dysplasia to carcinoma associated with the use of snuff.^{5,6} The carcinogenic potential of smokeless tobacco may develop only after prolonged daily use of many years duration, although the cause-and-effect relationship is equivocal.⁷⁻¹⁰ The 1979 Surgeon General's Report emphasized the dangers of tobacco smoking and specifically states that cigarettes are the major cause of lung cancer in men and women.¹¹ The possibility for oral carcinomatous change given prolonged smokeless tobacco use is a likely danger. One author has suggested that 646 cases of oral, pharyngeal, and laryngeal cancer are directly linked to smokeless tobacco use.¹² This health hazard should be communicated clearly to both users and potential users.

The localized callus-like changes which occur are probably innocuous and return to a normal soft tissue form if snuff use is discontinued soon enough. What may be insidious particularly with smokeless tobacco, however, is the development of habituation. These particular clinical reports typify the problem of becoming hooked on a product and the unsuccessful attempts to discontinue its use. For juveniles, early habituation to snuff may be a double problem: the development of a chronic habit of use which years later may cause severe consequences; and/or lead to a change in form of tobacco use, either alone or in combination with smokeless tobacco, to cigarettes, or other smoked tobacco products.

Besides localized soft tissue dysplasia, another potential hazard exists for users of smokeless tobacco. Generally the oral use of smokeless tobacco requires periodic expectoration. However, in at least one adolescent male

snuff user, a newspaper reported that he admitted he would "gut his chew" when at school in order to avoid spitting and making more obvious his use of snuff. The practice of swallowing the saliva-snuff mixture on a regular basis increases the risks to the user. Development of dysplasia and possibly carcinoma of the esophagus, the stomach, or of other tissues is possible.

Another concern is the potential for periodontal destruction which can develop in the mandibular anterior labial vestibule due to placement of the tobacco quid in that location. This was the most common site for all oral alterations caused by snuff dipping found by Greer and Poulson.¹ Often, a striking degree of gingival recession was observed about the mandibular incisors (Figure 2).



Figure 2. Severe gingival recession with root exposure of a mandibular cuspid in the area of snuff placement in a 30-year-old heavy user. The dark spots on the exposed root are particles of snuff.

Although the relationship between the width of attached gingiva and the preservation of teeth in the arch has not been established definitely, it is advisable to caution against the use of a substance which could cause tooth loss. In several cases of gingival recession observed in the aforementioned study, free gingival grafts already had been performed by dentists concerned with the amount of periodontal destruction which had occurred. If the involved teeth are eventually lost, the effort, discomfort, and expense necessary to restore the loss would be both extensive and unnecessary.

A typical snuff-induced lesion in a young person without lengthy history of use has a white and filmy appearance with no apparent elevation above the surrounding mucosa. Besides a color alteration, the mucosa has a fine wrinkled appearance. These alterations are noted directly in the area where the tobacco quid is placed and not elsewhere. The mandibular labial vestibule is the most common location for placement, followed by the mandibular buccal vestibules and maxillary vestibules. Small flecks of tobacco are often seen in the area of placement, frequently in the gingival sulcus or interproximal areas where removal may be difficult.

Other reported findings in individuals using snuff in-

clude discolored teeth, stained composite restorations, and increased incisal and/or occlusal abrasion of teeth.¹² Dentists observing soft tissue and dental changes would be prudent to pursue a history of smokeless tobacco use.

Christen and coworkers have traced the historical development of smokeless tobacco use.² Over several centuries it has gone through periods of popularity and disrepute. Although current use merely may represent a periodic trend, the past several years have produced an increasing popularization of smokeless tobacco. Sports entertainment may relate to this trend; television graphically shows the tobacco chewing and spitting rituals of baseball players. Advertisements during many televised sporting events and in the print media employ popular sports heroes to promote the ease, pleasure and, by implication, the fashionability of "going smokeless." Thus, a "macho" and "with it" image of snuff-using males is being promoted through advertisements.

The effects of unrestricted advertising seem to relate highly to the growing sales of smokeless tobacco. Children and adolescents surely are influenced by these promotions. Also, one bubblegum manufacturer is marketing a line which conspicuously imitates the packaging of chewing tobacco. Candy cigarettes have let a child pretend to be smoking, now a child can pretend to be chewing.

A more serious concern has to do with the laws (or interpretation of them) concerning the purchase of smokeless tobacco products. Whereas sales of alcohol and smoked tobacco products are regulated at the federal level, this is not so for smokeless tobacco (U.S. Code, Section 6, Title 15, Paragraph 1331-40). In most states sales regulations are left up to individual municipalities. Unfortunately, most states and municipalities have no age restrictions for the purchase of smokeless tobacco. In many cases laws in place are not enforced. In almost all cities and towns in Colorado, anyone (even a five-year-old) can, without restriction, purchase as much smokeless tobacco as desired.

Current fashion is undoubtedly a major factor in any juvenile trend. Although trends change and snuff use may lose its popularity, the possibility of habituation and changeover to smoked forms of tobacco cannot be overlooked. One of the authors was asked repeatedly by juveniles while researching snuff use, "How can I quit?" The American Cancer Society and the ADA publish information which attempts to educate the public about the dangers of smokeless tobacco products.^{4,14} Unfortunately, there are no participant programs which help smokeless tobacco users to quit. More research and work in this important area is needed.

Many juveniles and most parents describe the use of smokeless tobacco as an annoyance at the very least to "a disgustingly filthy habit." Parental disapproval, of course, rarely has been known to have a significant influence upon teenage behavior; the dentist may be per-

ceived by juveniles as a different sort of authority figure, one who may be influential in warning them about the dangers of using smokeless tobacco products, including snuff.

Conclusions

Smokeless tobacco products such as snuff are being used by greater numbers of teenagers and children. These products can cause varying degrees of soft tissue changes and also may damage periodontal and dental tissues. Parents may be unaware of a child's smokeless habit or possibly be unable to enforce its discontinuance. The dentist, however, may be the first health professional to recognize snuff-induced oral changes or to have the opportunity for discussing hazards with a teenager or child. Therefore, the dentist has an obligation to:

1. Detect in children and adolescents any soft tissue, periodontal, or dental changes which may be a result of using smokeless tobacco
2. Make recommendations for the possible treatment options available for those changes
3. Alert the juvenile and parents to the actual changes that have occurred (and their cause), to those that have potential for developing, and to the possibility of the development of habituation
4. Consider working for advertising and purchasing restrictions of snuff and to alert the public to the oral and general health hazards associated with the use of all forms of smokeless tobacco.

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Quotable Quote

One of the evils consequent upon the high-powered salesmanship courses is now almost universal practice of demanding and receiving large remuneration for lectures before society gatherings. One very large body recently has adopted a rule that prohibits any member from reading an essay or delivering a lecture before another society without receiving at least \$100 and his expenses for the effort.

A number of men lecturing throughout the country candidly state at the outset that they can only give an inkling or a bare outline of their real talk in one lecture, and that a full understanding can be had only in a complete course in the office, or in the lecturer's university laboratory, for so many hundreds of dollars for the full period.

The laborer is indeed worthy of his hire. Many of these men would be forced to remain at home during most of the year, if their very considerable travels were at their own expense. Large bodies of dentists might miss some messages of great merit but would be saved the necessity of listening to many others which are no more than schemes to promote.

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