

TABLE 1

Reasons for Not Performing Crown Lengthening After Crown Lengthening Needs Are Identified

Stage of treatment	Treatment factor	Percent of teeth (number of teeth)
After initial exam	Patient did not return	1.6% (12)
	Dentist decided not to treat	0.8% (6)
	Waiting for consult	4.4% (34)
After treatment plan presentation	Patient did not return for treatment	10% (79)
	Patient chose extraction	11% (84)
	Patient refuses surgical treatment	0.4% (3)
	Dentist deferred treatment	0.4% (3)
Initial therapy in general practice	Patient discontinued treatment prior to referral	9.9% (75)
	Dentist declared tooth nonrestorable and extracted tooth	12% (93)
	Dentist declared tooth restorable without crown lengthening	12% (93)
	Other reasons crown lengthening not performed	0.4% (3)
Periodontist referral	Patient did not return for crown lengthening	9.2% (70)
	Periodontist recommended treatment other than crown lengthening	18% (137)
	Periodontist recommends and performs crown lengthening as planned	8.9% (68)

This table lists reasons why crown lengthening was not performed after initial recognition of crown lengthening need. According to this study, 42 percent of patients who initially were identified to have crown lengthening needs did not get referred to a periodontist because of patient factors.

patients are managed by general dentists who direct junior and senior dental students who perform comprehensive dental care on patients. Most important, treatment and referral decisions for this study were made by general dentists who supervised the students. Specifically, general dentists in this clinic decided when to refer cases to in-house periodontists for evaluation and crown lengthening. Records of all 5,536 adults admitted for comprehensive dental care at the Dental Center between September 2010 and April 2014 were searched for chart entries with various spellings and truncations of the term “crown lengthening.” After eliminating erroneous, duplicate and irrelevant chart entries, we found 760 teeth in 584 patients where crown lengthening needs were identified. We tested the completeness of the search by reviewing a random block of 100 charts and did not find any additional crown lengthening cases. Demographic information, medical history and dental histories were canvassed for relevant information and tabulated in frequency tables. Periodontal diagnoses made by

calibrated dentists following the 1999 International Workshop Definitions⁷ during the patients’ initial exams were collected as well and tabulated. Each case was followed and outcomes were recorded as it passed from the general dentistry clinic to the specialists for crown lengthening procedures and back for restoration and maintenance.

Crown Lengthening Procedures

Although crown lengthening procedures may include orthodontic extrusion, gingivectomy and various crown lengthening surgical techniques, all patients received conventional crown lengthening surgery. Crown lengthening surgery was exclusively performed by three board-certified periodontists under local anesthesia at the Western University of Health Sciences Dental Center. For the vast majority of cases, prior to crown lengthening surgery, teeth were prepared to a final margin and provisionalized with cold-cure acrylic temporary restorations. In a few cases, there was not enough tooth structure to retain a provisional restoration.

For those cases, a vacuum template indicating desired crown exposure was provided to the periodontal surgeon. For crown lengthening, surgeons elevated a mucoperiosteal flap, removed alveolar bone to a level 3 mm apical to the restorative margin using rotating carbide burs and hand chisels, scaled and root planed exposed root surfaces with sharp curettes, thinned palatal tissue as needed and placed flap margins at or apical to the restorative margins after surgery. All patients received analgesics for the first week following surgery and were seen for postoperative evaluations after one week and six weeks. Teeth were usually restored about two to three months after crown lengthening surgery.

Radiographic Analysis

In order to retrospectively determine which radiographic characteristics would be most associated with extraction, one of the periodontists involved in this study evaluated calibrated digital radiographs that were taken when the treating general dentist referred the tooth for crown lengthening. Calibrated