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scratches on the implant abutment.

Numerous other methods can also be used to debride a plaque-contami-
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lasers; air-powder abrasion and vari-
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One study using access flap surgery with the application of a chemical
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Control of periodontal disease in
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Improved methods of cementation
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The Brown

I. Stephen Brown, D.D.S., Periodontics & Implant Dentistry

Another Look at the Problem of Peri-Implant Disease

A

lthough endosseous im-
plants have demonstrated
a very high survival rate, a
recent study found that 80 percent
of patients had peri-implant
mucositis associated with half their
implants and 56 percent of patients
had peri-implantitis surrounding
43 percent of their implants.

One recent study followed 2,300
implants for ten years and found
that patients with severe periodon-
tal disease had eight times the risk of
implant failure than patients
with healthy supporting tissue and
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Patients with a mixed dentition of
teeth and implants have a much
higher rate of implant failure if they
have generalized periodontal dis-
ease than patients with prostheses
which are fully implant-supported.

Contrary to earlier beliefs,
because implants lack a periodontal
ligament attaching into cementum,
one infection starts they’re actually
much more vulnerable to progres-
sion than natural teeth.
The supporting apparatus of an implant is more vulnerable to peri-
dontal pathogens than teeth. The loss of attachment and bone support around
an implant tends to be circular rather than vertical as it is with natural teeth.

Both the AAP and the EuroPerio 7 reports emphasized the importance of
excellent oral hygiene to control the biofilm around implants. Well fabricat-
ced and contoured restorations enhance the ability to control plaque
deposition.

Causes of
Peri-Implant Disease

Retention of excess cement around
the dental implant collar is a major
reason for bone loss because it attracts
pathogenic bacteria and the rough sur-
face of the cement provides a nidus
for the deposition and growth of
microorganisms which can lead to
peri-implant disease.

Cement-associated peri-implantitis
is one of the most significant reasons
for marginal infection and bone loss.
Recognition of excess cement is diffi-
cult and not always evident on radi-
ographs and it does not become clini-
cally evident immediately after crown
placement.

Studies by Wilson, Cobb and Callan
both found cement was an etiologic
factor in peri-implant disease. They
further observed this phenomenon
even in the presence of acceptable
restorations and without clinically
observable inflammation.

Shapoff and Lahey have discussed
numerous factors leading to excess
cement and discussed strategies to
identify, diagnose and prevent excess
cement around implants.

These findings appear to be consis-
tent, irrespective of the implant sur-
face or the type of cement used to
secure the restoration. Initial signs of
inflammation and peri-implant disease
were found as early as four months
and as late as nine years after fixed
implant restorations were cemented.

The favorable tissue response asso-
ciated with the removal of subgingival
cement is analogous to the improve-
ment in gingival inflammation when
calcus is removed from natural tooth
roots.

Another major cause of peri-implan-
titis is excess occlusal forces. Due to
the absence of a periodontal ligament,
implants are especially vulnerable to
excessive occlusal forces such as
those commonly seen in the presence
of bruxism and malocclusion.

Other causes of peri-implantitis
include:
- incompletely-seated abutments
- open crown margins
- over-contouring of restorations
- poorly positioned implants
- narrow zones of keratinized
gingiva
- systemic diseases such as
diabetes and osteoporosis
- smoking

All of the above contribute to poor
plaque control.

Preventing
Peri-Implantitis

- To avoid cross infection of
  implants, it is critical to prevent
  implant infection before it starts by
  managing periodontal infection
  throughout the mouth.

- Preventing the development of a
  biofilm and eliminating it from the
  implant surface should be the first
  steps in the preservation of peri-
  implant soft tissue health. This
  requires thorough oral hygiene

Figure 2 and 3. A radiograph of this implant in December 2011
revealed peri-implantitis has caused significant bone loss. The
patient chose to try to maintain the implant without any therapeutic
intervention. A radiograph of the implant in April of 2014 shows
extreme severe progression of bone loss which has now placed the
adjacent canine in serious jeopardy. Treatment considerations have
become very complicated.
instruction and strict patient compliance.

- Adequate periodontal disease control is also essential in the partially edentulous patient to prevent cross contamination from teeth to implants. Recent studies have found that the lack of preventive maintenance in individuals with pre-existing peri-implant mucositis was associated with a high incidence of peri-implantitis.

- When restoring an implant, it is absolutely essential to ensure all excess cement has been removed and the area is cleansable with an oral hygiene product such as an interproximal brush.

- Adjusting the prosthesis to open the embrasure space will allow the patient easy access during home oral hygiene.

- Pontic areas should be convex rather than concave in the area over gingival tissues to ensure plaque and food debris is easily cleansable.

**Diagnosing and Treating Peri-Implantitis**

As in periodontitis, deeper pockets and exudate always indicate peri-implant disease.

Peri-implant mucositis is often a reversible condition and requires only minimal intervention to treat. Thorough mechanical debridement of the area along with local anti-microbials such as chlorhexidine irrigation or Arestin is usually sufficient to resolve peri-implantitis. A thorough examination of the area should also be completed to ensure there are no local iatrogenic factors contributing to the problem.

Once infection and bone loss starts, implants become ailing and failing implants and treatment is challenging.

If the disease has progressed to peri-implantitis and bone loss is evident, initial treatment is the same as it is for the treatment of peri-implant mucositis: mechanical debridement, antimicrobials and strict oral hygiene protocols, including chlorhexidine mouthwash.

Open flap curettage with curettes and ultrasonic tips can and should be
used to remove the bacteria once the implant body is exposed in peri-
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