

# Explantation

Advancements in Dental Implant Removal



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## Why Remove Dental Implants?

While dental implants are highly successful, there are certain circumstances where their removal may be necessary. The most common reasons for removal of dental implants are advanced peri-implantitis and poorly positioned dental implants with compromised functional or aesthetic results.

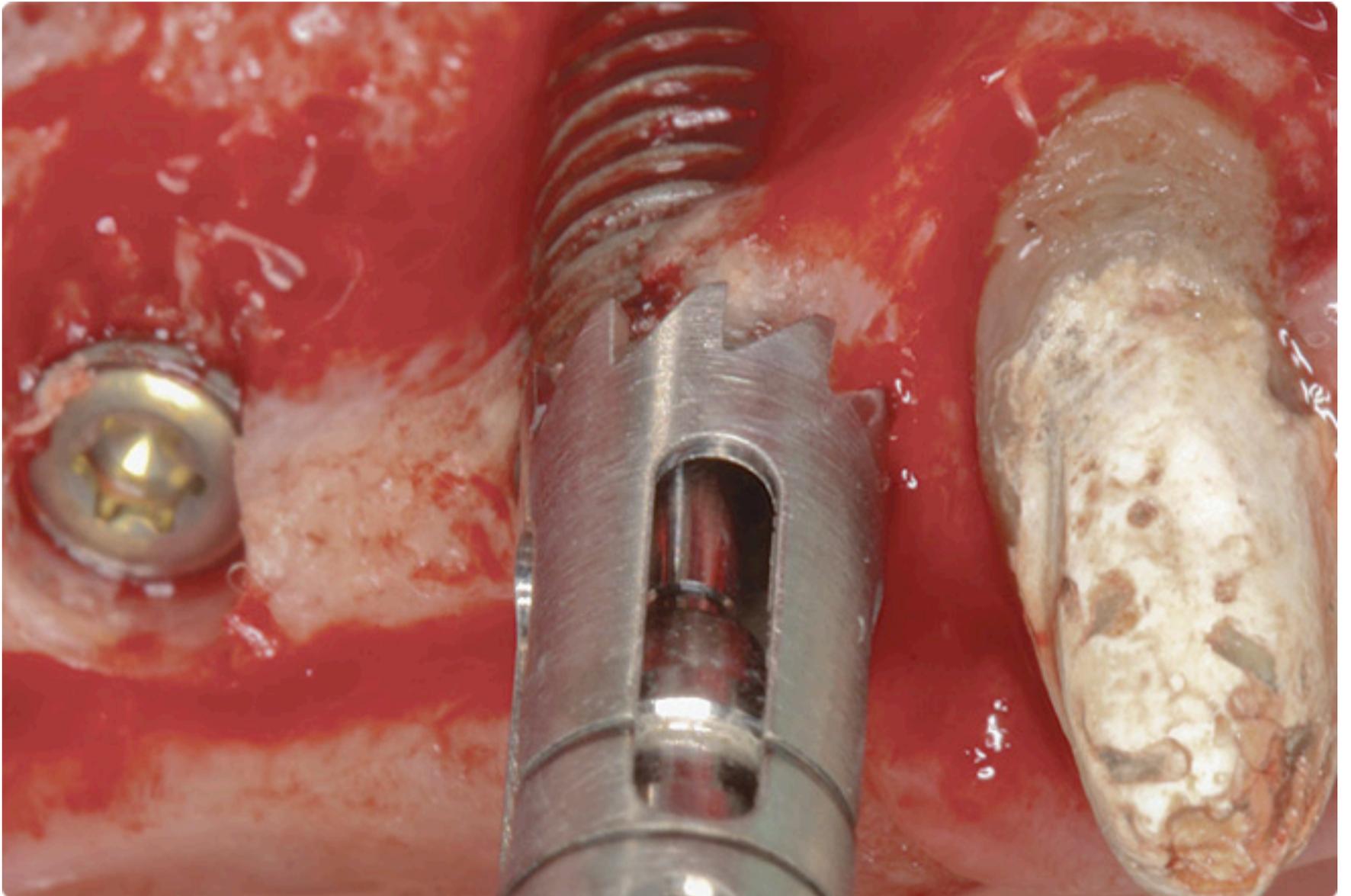


### The main indications for removal of dental implants (explantation) include:

- Infection with advanced bone loss
- Moderate to advanced peri-implantitis
- Chronic pain from inflammation or infection refractory to treatments
- Implant fracture
- Poorly positioned dental implants that cannot be restored with proper function or aesthetics
- Implant mobility
- Significant loss of attachment with exposure of implant surface / threads
- Fractured screw inside the implant that cannot be retrieved
- Deformed internal threads
- Specific request for removal by patients for various reasons:
  - Patients with atypical pain with no known etiologies where symptoms began after implant therapy
  - Non-specific health issues (weakness, neurological issues, dizziness, etc.) with no known etiologies. Such patients report symptoms immediately following placement of implants. Some report improvement upon their removal. The pathophysiology is unknown.
  - Psychological reasons
  - **NOTE:** Some patients may request removal of perfectly healthy dental implants with no evidence of pathology. Such requests may be for purely personal reasons. While the clinician may proceed with implant removal with informed consent and no guarantee given for improvement of implicated conditions, the parties should engage in an extensive conversation about the pros and cons of the procedure and explore other psychological or medical therapies first.

## The Old

### Implant Removal Trepine Burs



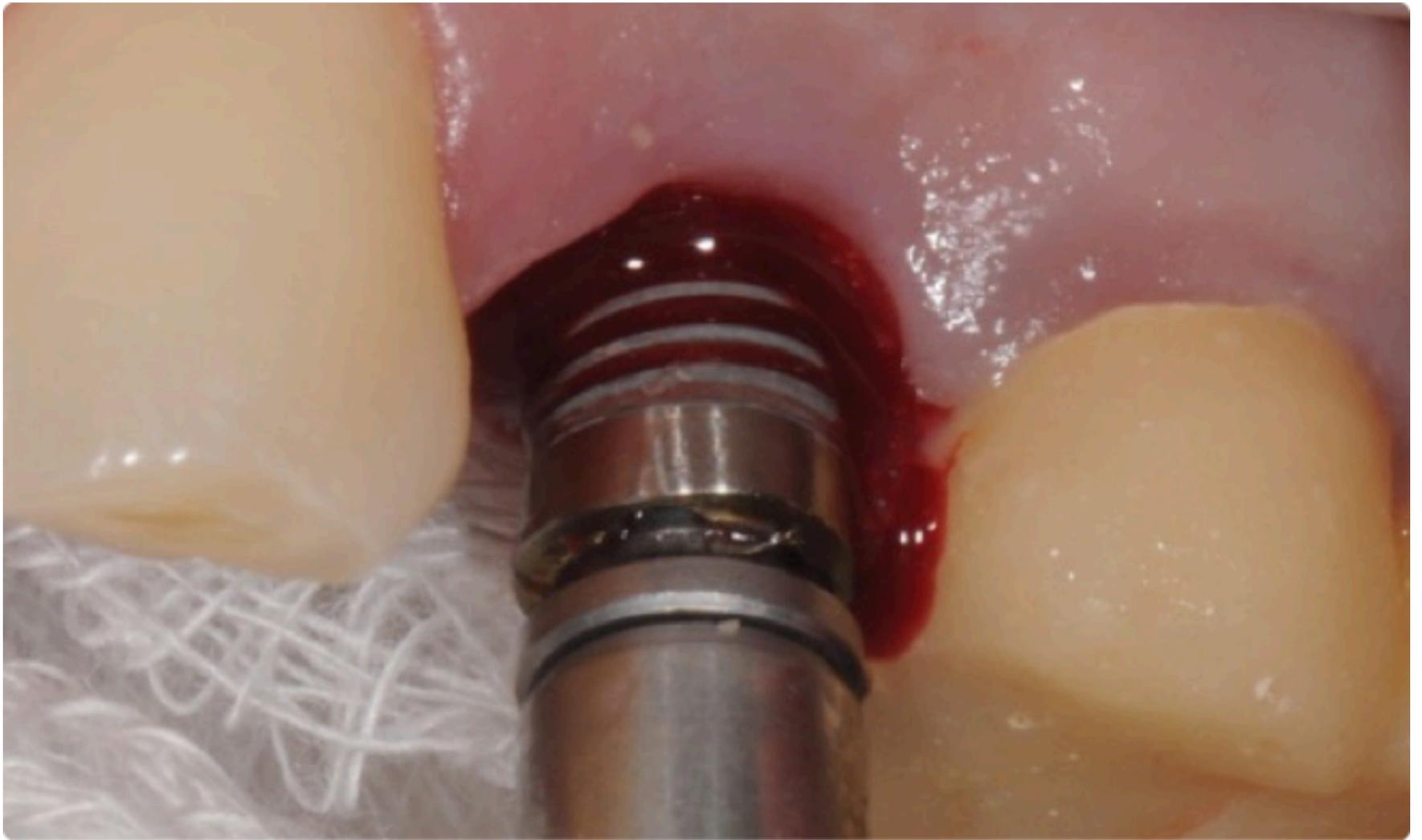
Until recently, the only way to remove integrated dental implants was to use trephine burs to create an osteotomy around the implant. With this technique, a trephine bur with a diameter 1 mm wider than the implant to be removed is selected. The trephine bur is then positioned over the implant and, with high RPM (>20000), a crestal osteotomy is created with copious amounts of saline. The osteotomy is continued to the apical extent of the implant. The implant is then mobilized and removed.

This is a relatively traumatic procedure, which often results in significant loss of bone (buccal, lingual / palatal, or both). Also, intimate contact of the trephine bur with the implant surface during drilling may lead to micro titanium fragments in the bone or soft tissue.

The recovery from this technique is relatively longer and associated with increased pain and swelling compared to a less invasive reverse torque explantation technique described below.

## The New

### Reverse Torque Explantation



The reverse torque explantation technique involves the use of specialized tools to exert high reverse torque forces to the dental implant in order to break the mechanical implant-bone bond (osseointegration), hence allowing its removal. These tools are specifically designed to fit the internal aspect of the dental implants and allow up to 250 NCM of reverse torque necessary for implant removal.

The explantation tools are universal and work with most types of implants as long as they can engage the internal mechanism of the implant. Explantation screws come in various sizes and diameters to match the specific implant to be removed. Maxillary implants often require less reverse torque forces than mandibular implants due to maxilla's D3-D4 bone quality. The mandibular implants are considerably more difficult to remove due to D1-D2 bone quality, particularly when the implants are wide or long with increased implant-bone contact. In such cases, if the initial reverse torque is not effective, a trephine bur is used to create a shallow osteotomy at the crest (about 2-3 mm), and then the reverse torque explantation tool is attempted again.

## The Steps

### Reverse Torque Explantation



Patient with an integrated implant who requested its removal due to chronic atypical facial pain and headaches and other health issues noted following implant placement.



The specialized torque screw is placed inside the implant and tightened in reverse until the internal aspect of the implant has been engaged.



The wrench is attached to the reverse torque screw with an adapter. A firm and consistent reverse torque force is applied as the head of the screw further engages the implant.



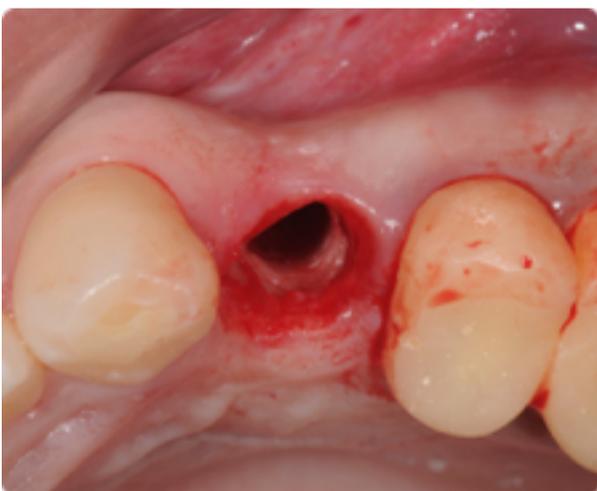
The process is continued until the implant-bone bond is disrupted and the implant begins to rotate out.



The implant can then be removed simply using the adapter with finger rotation.



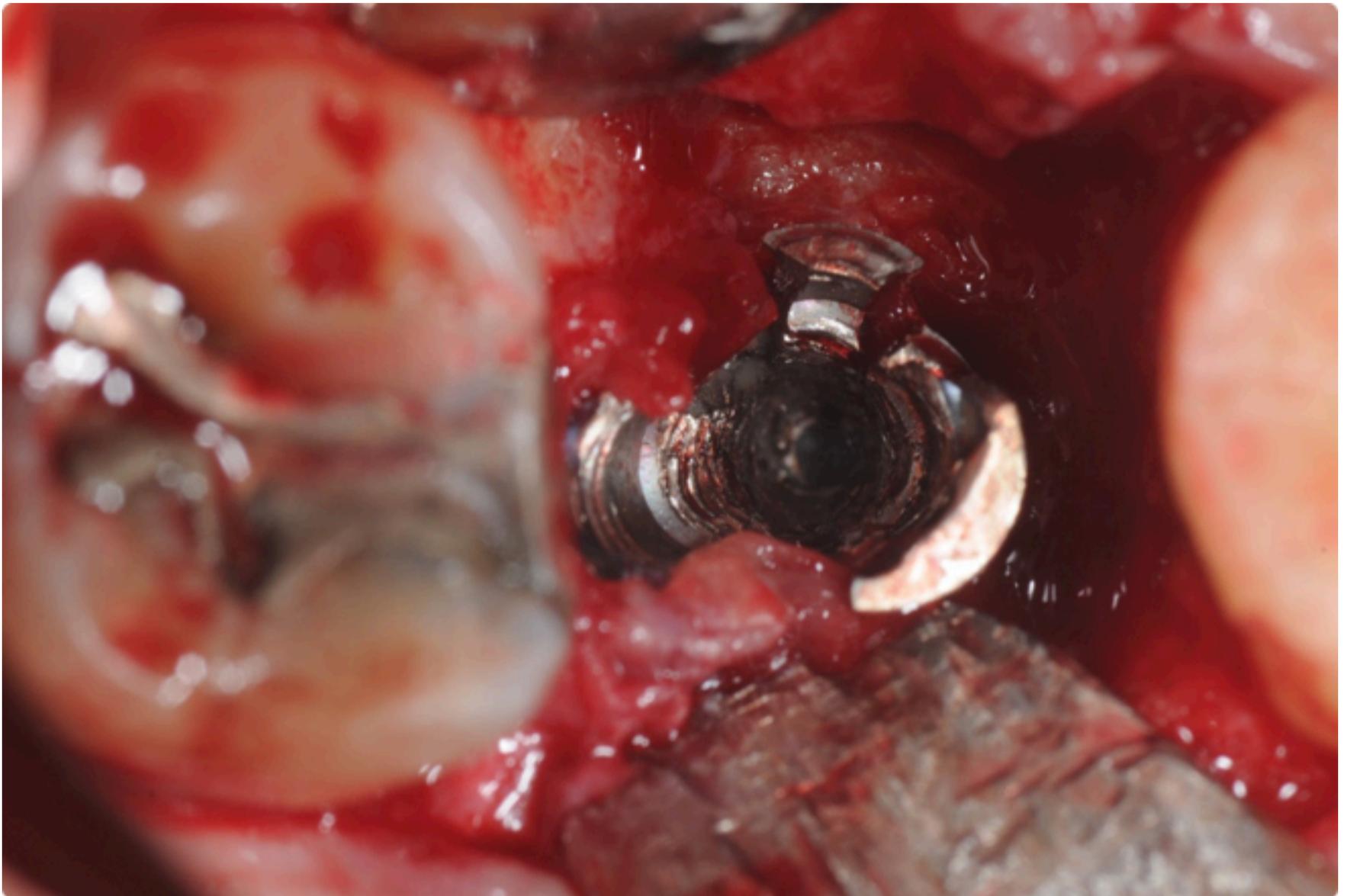
The implant is removed atraumatically requiring no incisions, flaps, osteotomy or bone removal.



If necessary, a site preservation / augmentation bone graft maybe done at this time. Alternatively, a collagen plug or a platelet rich fibrin membrane can be placed for enhanced healing.

## The Exceptions

### When Reverse Torque Does Not Work



#### Explantation tools are not effective in the following circumstances:

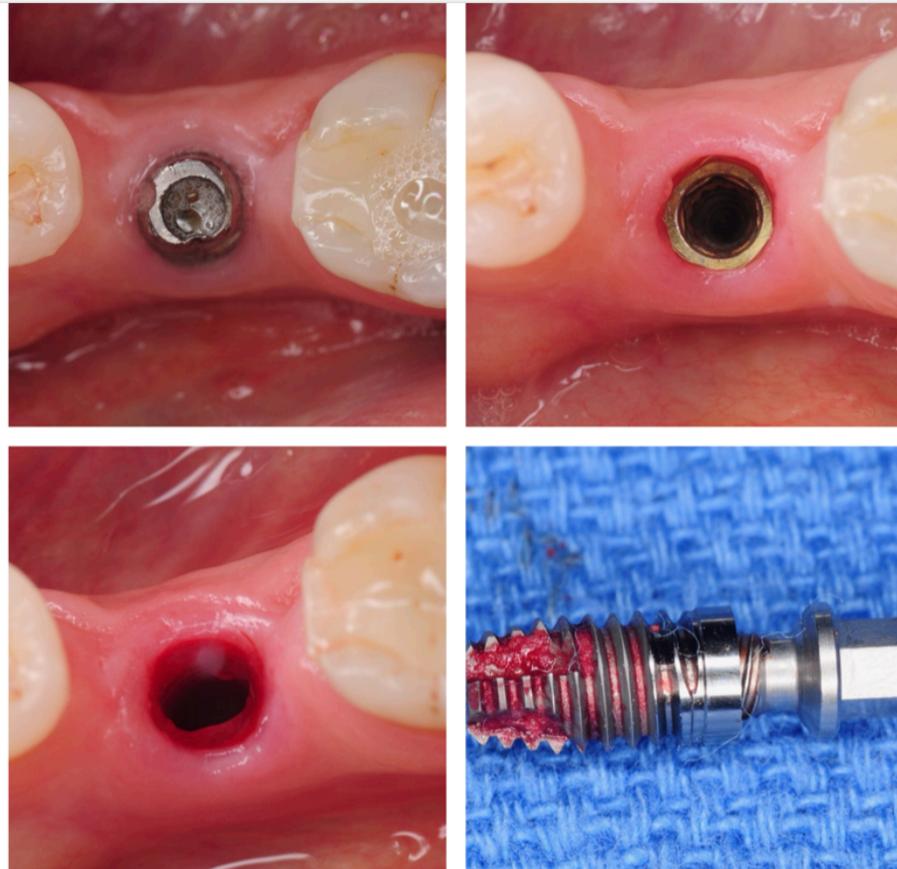
- Removal of Bicon implants
- Implants with fractured implant body and splayed out structure
- Implants with an irretrievable fractured screw blocking the internal hex

In these circumstances, the implant may be removed using a trephine bur or using piezotome to gently remove bone around the implant and then dislodge using conventional elevators.

**Press fit implants** can be removed with the reverse torque technique. However, due to lack of threads, these implants tend to 'spin' in place. Once the implant-bone bond has been disrupted, the implant can be removed by grabbing the top of the torque screw with a heavy wire twister and then pulling it out. Removal of **ceramic implants** with this technique has not been tested.

## For More Information or Training on Explantation Technique:

- Contact us at 301.654.7070 or [info@facialartdentalforum.com](mailto:info@facialartdentalforum.com)
- Join **[www.facialartdentalforum](http://www.facialartdentalforum.com)** for online education



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