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A LYRA COMPANY

COMPLICATIONS
MANAGEMENT GUIDE

FIRST SURGICAL STAGE

PROBLEMS	POSSIBLE REASONS	SOLUTIONS
Bleeding during the drilling.	Lesion of an arteriole.	The implant stops the bleeding.
Unstable implant after its insertion.	Soft density bone. Imprecise bone preparation.	Lateral mobility: remove the implant and replace it by a wider implant. Mobility in rotation: increase the healing time.
Exposed implant threads.	Too thin crest.	Cover the threads with coagulum or use a membrane.
Inflation in lingual just after the implants insertion in the mandibular symphysis.	Lesion of a sub lingual artery.	Emergency situation. Send the patient in a center specialized for clamping the artery under complete anaesthesia.
Important postoperative pains remaining after some couple of days.	Osteititis due to a too aggressive bone preparation or to a bacterial contamination.	Unscrew the involved implant.
Insensitivity labia-mandibular.	Lesion or compression of the lower alveolar nerve.	If the problem lasts for a week, scan the patient, check the involved implant and unscrew.
Visible cover screw after a few weeks of temporization.	The cover screw is not buried enough. The mucous is too thin. Compression of the temporary prosthesis.	Do not try to cover the visible screw. Prescribe to the patient very rigorous measures of hygiene. Screw as soon as possible an healing abutment. Empty out the temporary prosthesis.
Formation abscess of over the cover screw after weeks of temporization.	Not osseo-integrated Implant (not very probable). Infection around the cover screw (generally slightly unscrew).	Unscrew the implant. Cut a gingival flap, remove the granulation tissue, disinfect with a chlorhexidine solution, change the cover screw, suture again.

SECOND SURGICAL STAGE + ABUTMENT CONNECTION

PROBLEMS	POSSIBLE REASONS	SOLUTIONS
Slightly sensitive implant but perfectly fixed.	Imperfect osseo-integration.	Extend the healing period without loading during 2 to 3 aditional months and test the implant again.
Slightly painful implant and mobile.	Non-osseointegration.	Unscrew the implant.
Difficulty to screw an impression-coping screw, an abutment screw or a protection cap.	Damaged thread of the screw.	Change the screw of the abutment.
Unscrew of the healing abutment or the definitive abutment.	Low tightening during their placement. Pressure of the adjoining partial prosthesis.	Anesthetize the area, remove all the granulation tissue which covers the head of the implant, disinfect with the chlorhexidine, replace the abutment. *Proceed to a calibrated tightening with a torque wrench by respecting the insertion torque.* Warning: if some gingiva is stocked under the abutment during the screwing, there is a risk of infection with an important bone loss.
Fracture of a prosthesis screw during the definitive tightening.	Too high torque.	If the fragment of the prosthesis screw is not accessible, it is necessary to change the abutment screw.
Impossibility to perfectly connect the abutment onto the implant.	Insufficient bone clearing.	Anesthetize, use the bone trephine with the guide rod, clear the bone. Clean and rinse with the physiological serum, then replace the abutment. Think to check with X-Ray the connexion between the abutment and the implant.
Granulation tissue around the implant head.	Traumatic placement of the implant, compression of the temporary prosthesis, operculization over the cover screw.	Incise, disinfect with a chlorhexidine solution. If the lesion is too important, allow a technique of bone regeneration with bone graft.

Extract from the book «Decision-making in implant practice» of Franck RENOUARD & Bo RANGERT - Quintessence International.
The further recommendations from **etk** *are shown in italics.*

PROSTHESIS STAGE :
CHECK AFTER THE PROSTHESIS PLACEMENT

PROBLEMS	POSSIBLE REASONS	SOLUTIONS
Pain feeling during the screwing of a screw (for the fitting of the span or the placement of the prosthesis).	1. Implant with an imperfect osse-ointegration. 2. Wrong adaptation of the trabecula.	1. Stop the prosthesis stages. Leave the implant without loading for 2 additional months. Test it again and repeat the prosthesis stages. 2. Cut the span, take a key and make a primary soldering in the laboratory. Fitting of the span.
Unscrewing of one or more prosthesis screws during the first check at 15 days.	Occlusion problem. *Uncalibrated screwing.*	Screw again, *with new screws and a dynamometric torque wrench by respecting the tightening torque,* check the occlusion, and check again after 15 days.
Unscrewing of the prosthesis screws during the second control or late unscrewing.	*1. Occlusion problem or wrong adjustment of the trabecula.* *2. Too large extension, bad design of the prosthesis.* *3. Uncalibrated screwing.*	1. Check the occlusion and / or control the adjustment of the trabecula. 2. Reduce the extension. Change the design of the prosthesis (add an implant etc.). 3. Screw, *with new screws and a dynamometric torque wrench by respecting the tightening torque,* check the occlusion, and check again after 15 days.
Abscess facing an implant.	Wrong adaptation of the abutment on the implant.	Check the adjustment of the abutment onto the implant with a retroalveolar X-Ray. Remove the abutment, sterilize it, remove the granulation tissue, disinfect with a chlorhexidine solution, place again the abutment. *Use a new screw.*
Pains after the placement of the prosthesis.	Osseo-integration loss of an implant. Peri-implant infection.	Remove the implant. See below.
Fracture of the resin or ceramic.	Problem of occlusion bruxism or parafunctional patient.	Check the occlusion. Make up an occlusive denture.
Fracture of the frame.	Too thin metal reinforcement and / or too large prosthetic extension. Patient with bruxism.	Make the prosthesis by modifying the design (adding an implant, deduction or elimination of extensions, reduction of the width of the occlusive surface, reducing of the inclination of the cusps, etc.). Make up an occlusive denture.
Fracture of the prosthesis screws or the abutment.	Occlusion problem, wrong adjustment of the trabecula or bad design of the prosthesis.	If the occlusion and the adjustment onto the prosthesis seem correct, change the design of the prosthesis : reduce or delete extensions, reduce the width of the occlusive surface, add an implant etc…
Implant fracture.	Occlusive overload.	Remove the implant with an adapted bone trephine, wait 2 to 6 months, place a new implant with a larger diameter, if possible make the prosthesis once again.
Continuous bone loss around one or more implants.	1. Infection (peri-implantitis). 2. Occlusive overload.	1. Delete aetiological factors (wrong plaque control, inadequate form of prosthetic contour etc...). Find a focus of infection natural teeth. Conduct bacterial tests. Lance the lesion. Develop peri-implant tissues (gingival grafts). Consider a bone regeneration technique. 2. Modify the design of the prosthesis. Reduce or remove extensions, reduce the width of the occlusive surface, reduce the cusps scope, add an implant, etc...
Visibility of the titanium abutment through the mucous membrane.		Make a graft of connective tissue. Change the abutment and use an abutment with nitrure coating.
Important phonetic problems that do not disappear after 2-3 months.		Close inter-implant spaces (warning to maintenance possibilities). Make a take removable gingiva. Remove the fixed prosthesis and replace it by a prosthesis with supra-implant anchorage.
Bleeding during the sonde.	Mucosa or peri-implantoclasia.	Delete aetiological factors (wrong plate control, inadequate form of prosthetic contour etc. ...). Find a focus of infection on natural teeth. Conduct bacterial tests. Lance the lesion. Develop peri-implant tissue (gingival grafts). Consider a bone regeneration technique.

ADVANCED SURGERY PROTOCOLS

PROBLEMS	POSSIBLE REASONS	SOLUTIONS
Bone grafts under membrane		
Early exposure of the membrane.	Suture in tension.	Do not try to suture again. Prescribe antibiotics to patients. Remove the membrane as soon as possible. All the granulation tissue must be removed. Suture edge to edge without placing a new membrane. Foresee a graft volume loss when the implants are inserted.
Late suppuration.	Unknown. Left suture wire.	Same protocol as above.
Monobloc bone grafts		
Postoperative bleeding at the donor site.	Slight bleeding.	Compress the site. Add ice. Add intra oral compresses for 1 hour. Check the quality of the suture. If the bleeding continues, consider The possibility that an artery is sectionned.
Bleeding or significant posto-perative oedema at the donor site (within a couple of hours following surgery).	Sectioned artery.	Anesthetize the patient and check again the surgical site. Identify the bleeding point. Apply wax for bone on the bleeding point and a resolvable haemos-tatic material in the bone socket. Wait a few minutes before suturing again. Add compresses in the mouth. Add an extra oral compressive bandage. Add ice.
Postoperative bleeding at the receiving site.	Loose suture. Unknown.	Check the quality of the suture. Add pads in the mouth. Add a bandage compression extra-oral. Add ice.
Mobility of the graft during the implant placement.	Insufficient not completed. Left wide empty spaces. Some of granulation tissue was found between the graft and the receiving site.	- If the graft is vital (macroscopic appearance and bleeding during the drilling) remove it, reanimate the inner side of the graft and the receiving site. Position the graft once again and fix it with micro fixations. Remove any bone fragments to insert them between the graft and the receiving site so as to avoid the presence of wide empty spaces. Cover the graft with a membrane. Wait another 6 months. - If the graft is not vital anymore, remove it and schedul a new inter-vention.
Intra-sinus grafts		
Perforation of the membrane.	Very thin membrane. Too fast detachment. Presence of a mucoid cyst.	Continue the detachment widely around the hole, then place a of resolvable patch membrane to seal the gap.
Complete destruction of the membrane.	See above.	Stop the intervention in case that pieces must be placed. It is possible to place those pieces in a pocket shapped by a re-solvable membrane, but this technique has not been validated by reliable study. Continue if a monobloc graft technique is used.
Postoperative infection.	Asepsis failure during sur-gery. Tooth infection close to the graft.	Prescribe antibiotics to patients (amoxicillin + clavulanic acid métrodinasole - if not allergic) for 10 days: - The infection dries itself. Check on a regular basis. - If the suppuration and the oedema is keep going on in the next few days, open again and eliminate the granulation tissue.
Post-surgical epitaxy.	Membrane destruction. Reactional hemo-sinus.	No treatment. The patient must be notified at the end of the surgery.

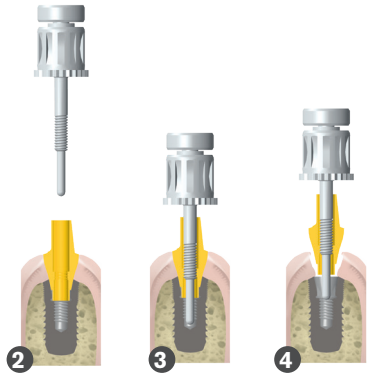
etk EXTRACTION KIT

This extraction kit is a complete solution for clinical and mechanical complications encountered in implantology

Before undertaking any extraction operations of a screw, try to use an old seized contra-angle and a round bur to grip the fragment screw, in reverse mode.

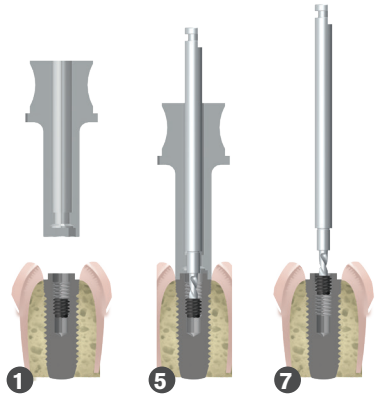
After all extraction operations of a screw or an implant, analyze the problem source (occlusal efforts, prosthetic passivity, bruxism, improper prosthetic choice, contraindicated implant placement...).

CAUTION: Small instruments may fracture under inadequate or excessive constraints.



I. Removal of a blocked abutment in the implant

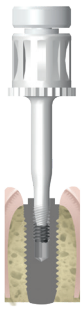
1. Remove the fixation screw from the abutment.
2. Screw manually the abutment extractor in the abutment threaded part.
3. Screw the extractor at the bottom of the implant.
   Be careful: cut the top of the abutment if it abuts on the head of the extractor.
4. Mount the ratchet on the extractor to finish the screwing and break away the abutment from the implant.
5. Extract the abutment with the extractor.



II. Removal of a broken screw in the implant

Step 1

1. Seat the drilling guide onto the implant.
   Caution: adapt the guide to the implant.
2. Insert the drill into the contra-angle.
3. Select the «reverse» mode on the motor, with a 400 rpm speed.
4. Use irrigation to avoid heating the drill.
5. Once the pre-hole is done (±1 mm deep), remove the guide.
6. Set the motor speed at 1200 rpm, always in «reverse» mode.
7. Unscrew the broken piece with the drill inserted in the pre-hole with a light pressure.



Step 2

The fractured screw cannot be unscrewed with the drill:
use the extractor for screw

1. Insert the extractor into the pre-hole that you have achieved.
2. Turn counterclockwise to grasp the screw applying a light pressure on it.
   Keep on unscrewing to remove the screw with the extractor.

II. Removal of a broken screw in the implant - continuation

Step 3

If the implant thread is damaged (after step 1 or step 2).

1. Lubricate the tap with food grade lubricant.
2. Hand-screw the tap in the axis of the part without forcing.
3. Remove the tap manually by unscrewing at the first effort.
4. Clean the thread and remove the formed chips.
5. Repeat these operations until the end of the thread.
6. Try a new screw (screw without effort).

III. Removal of an implant

Step 1

Use the implant extractor.

1. Insert the extractor into the connection of the implant to be removed.
2. Turn counterclockwise to grip the implant by applying pressure thereon.
3. Use counterclockwise the click-wrench on the extractor head to unscrew the implant.
4. Once the thread is taken in the material, unscrew the implant to break it away from the site.
5. Extract the implant by unscrewing it with the extractor.

Step 2

If the extractor implant did not work (after step 1).

1. Choose the trephine according to the implant diameter.
2. Place the trephine on the contra-angle.
3. Adjust the motor speed according to the trephine diameter.
4. Grind around the implant, taking into account the working length that should be inferior to the implant length.
5. Extract the implant with dental forceps with twisting and bending movements.

To get more information about these extraction kits, please contact your sales advisor or **etk** *at +33(0)4 50 91 49 20.*

TAKE PART IN OUR MULTICENTRIC STUDY
and return this statistical survey to **etk**

etk permanently analyses the results gained with its implants. A team of practitioners random selected, files in complete files to feed a multicentric study. You can also simply inform us with your results, they will be taken into a consideration for our statistics, with or without your name depending on your wish. Only global statistics will be edited. No personnal statistic will be presented.

IMPLANTS STATISTICAL SURVEY:

☐ Naturactis ☐ Naturall+ ☐ Natea+ ☐ Aesthetica+^{2} ☐ Uneva+

☐ Naturactis ø3 ☐ Naturall+ ø3 ☐ Obi ø2.7

From : ..... to .....

Total number of placed and loaded implants	
Total number of failures	
Number of failures before loading	
Number of failures due to the patient (bone density, pathology, hygiene…)	
Number of failures due to the protocol or the treatment plan	
Number of not explained failures	
Number of failures without any information	

Your comments: .....
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Would you accept your name to appear in the study :

☐ Yes
☐ No

I confirm that the communicated information and in accordance with my clinical cases.

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