Sinus Lift. Don’t Dream It: Do It!

By Dr. Dominique Caron, UAE

Do you know you are about to perform your self your next sinus lift procedure? Once it is done, you will wonder why you have been waiting for so long. The issue that often fails is: one, two, three teeth missing, framed by no tooth, weak teeth, living teeth...

but who can you fully trust?

However, if you feel there is nothing beyond you and that you have learned, that you have been on training courses, you will need to take the plunge! I don’t know if you feel the same but during a lecture everything seems easy, quick, simple, it is like magic!

What is the best option to be ethical and efficient?

First option: a bridge. It means to damage several teeth, to do root canal treatments, to overload several roots, as well, the pontics are hard to clean, and the cosmetic effect is not always perfect...

Never forget: PRIMUM NON NOCERE! First don’t harm!

The smart way, of course, is to do implants: you will fix the problem where the problem is, without damaging the neighbors.

This solution would be nice except that it cannot work like this. The sinus may “disagree” and will have no strength.

What you dream of is that: “strong implants fit into a strong support”.

Simple, except that you never did it!

If you are ethical:
- You will leave the bridge to stone age
- You will manage to have the implants done in the best conditions.

To do so you can subcontract the implants surgical step with a colleague who knows how to do it, it is safe and professional, but now that you are alone without safety net, you don’t know where to begin. It is time for you to become your own specialist.

All this is first a matter of state of mind: YES YOU CAN!

Yes, all what we have to do in this dental case is simple: it is a matter of screws and plank. If you can assemble an IKEA cupboard, you can do implants. You should never lose the sight that what we do on every day basis is a matter of building and civil engineering works. It is just at a very smaller scale.

Nevertheless, we have the same constraints and an additional foe “the bacteria”.

Don’t lose your common sense, consider the stair case step by step and “THINK SIMPLE”. You don’t have a plank thick enough for your screw, add a back plate! The idea is the same, may be some more details to take into account, and the support is a living body you are supposed to “keep alive”... it is appreciated. (Joke)

The most accurate and safe in the market is the cone beam system.

With a Cone Beam, you have:

- Safety: 70 to 100 times less radiations than with a CT scan.
- Accuracy: the image is much more detailed and you can navigate in 3D to lookout for the exact information you need. Then you will be able to set virtually your implants to stick perfectly with the needs.

On the crest, don’t stay exactly in the middle, but little on the palatal side. The buccal flap will protect the implants more efficiently. Extend your incision at least one tooth front and one-tooth back to have an easy access without a long vertical incision.

Make sure the incisions will not be close to the graft. You need to see easily what you are doing, it is a priority. The more you peel off the gums, the less you cut, the better your patient will heal. So you should always be smooth!

1. Study the Case
Before going onto holidays, you are studying the place you will go, don’t you? Well it’s the same for any surgery. You need to know precisely the area you will drill. The first thing you need to know is what to avoid and what to keep safe: don’t play with the main arteries and nerves, they have “no sense of humor” and they don’t tolerate approximation. The second thing to know is where and how to drill and which implant to set.

When you don’t have to focus on the tools, you can pay attention to what you do. You don’t drive well if you look at the dashboard and not at the road.

This is why you will leave the bridge to... do a good job.

Good artist needs good tools to do a good job.

What are the imaging tools matching with the needs? The most common is CT scan, easy to find but you will get many raw slides and you build the 3D in your mind. Keep this to the Stone Age due to the huge rate of radiation.

2. Open the way
You should always keep in mind that you are working on living tissues. Those you will open will have to be closed. “The best way you cut, the best way you stitch”.

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4. Fill the new empty space with the graft
5. Set the implants through the bone and the graft
6. Cover the window

This must not scare you. It is a logical process and we will go through together step by step and in fifteen minutes, you will wonder why you never did it earlier.

Go simply step by step:
1. Study the case with an accurate 3D image.
2. Open the way
3. Raise the “schneiderian membrane”
4. Fill the new empty space with the graft
5. Set the implants through the bone and the graft
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I will come back later on this technique. Peel of the gums smoothly on the buccal side with the periosteutti. Take off high enough to help you “SEE WHAT YOU DO”.

Surprisingly, you will see it is helping a lot!

Now, big question: graft and implant in 1 or 2 times?
You came to all the conferences of CAP, you read a lot, you have watched many videos.

The result may be as follows: “The more you try to learn, the less you know”!

For the same question in the same conditions, you may be told anything and its opposite… Maybe this is not really helping but the state of mind is often: big graft, big delay!

Once more, I can tell you what I have done for more than 20 years. Don’t lose your common sense: a graft set in the bottom of a sinus is like a loose cargo in the bottom of a hold.

As soon your patient walks or goes down the stairs, you can imagine how it is shaking. Beyond the mechanical properties of the graft itself, what we will talk about in a minute, you can expect the fragile Schneiderian membrane will not be a great help.

Once more you should be practical. Put a screw in the middle! If your graft is rolling, there will be no healing, not fiber growth, no new blood vessel, and you will fail.

A stable graft is compulsory to get a predictable healing, with a stake in the middle; you make it a stiffer.

Now softly lift off the membrane from the bottom of the sinus, the same way you would lift a carpet! Once more avoid “Parkinson” and take your time. This step is important, it is not a race! You will see many “movie stars” proud to say they are very fast. As a matter of fact, the quicker you work, the better is the healing, but the main point is to be accurate and smooth. The stop watch comes next...

One more benefit: you will save 5 months on the process and you have now a welcoming cavity for your counter plak and the way in.

Look at the membrane it should move following the pace of the breathing like bellows:

2 options:
- You stab the membrane, you rip it up. You need first to set a patch to protect it.

Now a big question: What kind of graft?
You have attended many lectures, read many reports, gone on internet: each time the material considered is the best and fits 100%.

All the materials are the best! How can you make your mind?
To enter the problem in a relaxing way: “EVER K IND OF GRAFT CAN MATCH!” and the market is wide.

First of course, you have the bones:
- Autologous bone: seen as the best.
- No immunogenic reaction, but you need to harvest. If you take the graft on the chin or the ramus you may have pain, inflammation and parasthesia. If you use the hip or the skull, you get involved in a heavy process, too heavy.

Allo graft, xenograft are dry bone despecified with slow remodeling and a granular display which is not helping or a cubic display not easily matching.

You have coral, hydroxyapatite, calcium carbonates, brusichites, phospho calcic, ceramics, tricalcium phosphates, biaphase ceramics, polymers, bioglass, calcium sulfates, composites… The list is long.

All materials can fit. Anyway, same as for your car. Four wheels and an engine means a car. Except some brands are better than the others!

Again think simple: What do you need? The graft must be:
- Easy to use
- Hemostatic

Now, as a second ceiling, you set an absorbable membrane.
For good, “resorbable” in 2-3 months, in time with the natural process.
- You did not stab it, you win.
Go straight to the drilling of the socket with a tool as a shield between the drill and the membrane.

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What happens in you graft?
- First hours: collagen type III, which is roughly made of several type I, has a surface that activates the platelets and makes with fibrin, a quick and stable clot.
- First days: granulations tissues, then remodeling tissues.
- One week: macrophages, cytokines, growth factors start micro vascularization
- First 2 months: new vascularization in new growing time created by osteoclasts. Osteoclasts are at work, you find stem cells in the lacunae.
- 6 months: dense bone is available, osteoblasts become osteocytes.

What happens in the sinus after some months? Let us see more samples:

Histological evaluation of human tooth bud bone reconstruction with MATRIBONE, a collagen-based bone graft substitute, in dental and maxilla facial surgery.

Process:
1. Collection of a bone biopsy at the center of the treated side with a trephine bar.
2. Fixation in 70% ethanol, dehydration and inclusion in methyl methacrylate resin. Re-alization of 7 microns sections (NOVOTEC laboratory, Lyon, France).
3. Trichrome Goldner staining and microscopic analysis.

Case 1: Biopsy after 4 months
45 year old female, 16 extraction. Bone deficit in height and thickness.

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small granules fit well to the defects and increase the reactive surface.
- Beyond 500 um stands the pressure of the soft tissues.
- The wider it is, the more you get hollows welcoming stem cells.

Today, the best I have found is MATRIBONE from BIOM U.P. It is a kind of sponge you can shape, cut. It is malleable, repositionable and doesn’t crumble. It is made of a 10% frame of collagen type I and III surrounding 90% of mineral biphasic 60% Hydroxyapatite, 40% tri calcium phosphate.

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New coating could eliminate implant failure risk

By Dental Tribune International

TORONTO, Canada: Although their success rate has been reported as about 85 percent, dental implants can fail owing to biological and technical issues over time. In many cases, the body’s inflammatory response causes rejection. Canadian research has now presented a new implant coating that helps disrupt this immune mechanism to prevent both the risk of implant failure and the need for anti-inflammatory drugs.

The disruptive new anti-inflammatory polymer was developed by Dr. Kyle Battiston, a postdoctoral fellow at the Faculty of Dentistry and a recent graduate from the Institute of Biomaterials and Biomedical Engineering at the University of Toronto. It was originally designed as a tissue-engineering scaffold that allows tissue engineers to grow cells successfully.

Battiston and his colleagues were able to coat implants with the biomaterial, which is derived from a family of polymers found to reduce inflammation, specifically when it interacts with white blood cells, and discovered that the coating calms the body’s immune response.

“We’ve learned this family of materials can retain its anti-inflammatory character while adapting diverse physical properties,” said Battiston. The material could thus be used for a wide variety of medical treatments.

Battiston plans to market the coating through his new start-up company kSP2 within the next five years.

According to the American Academy of Implant Dentistry, 5 million Americans already have dental implants and this number is growing by 500,000 a year. About 10 percent of all U.S. dentists place implants today. The association estimates that the U.S. and European market for dental implants will reach $4.2 billion by 2022.

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