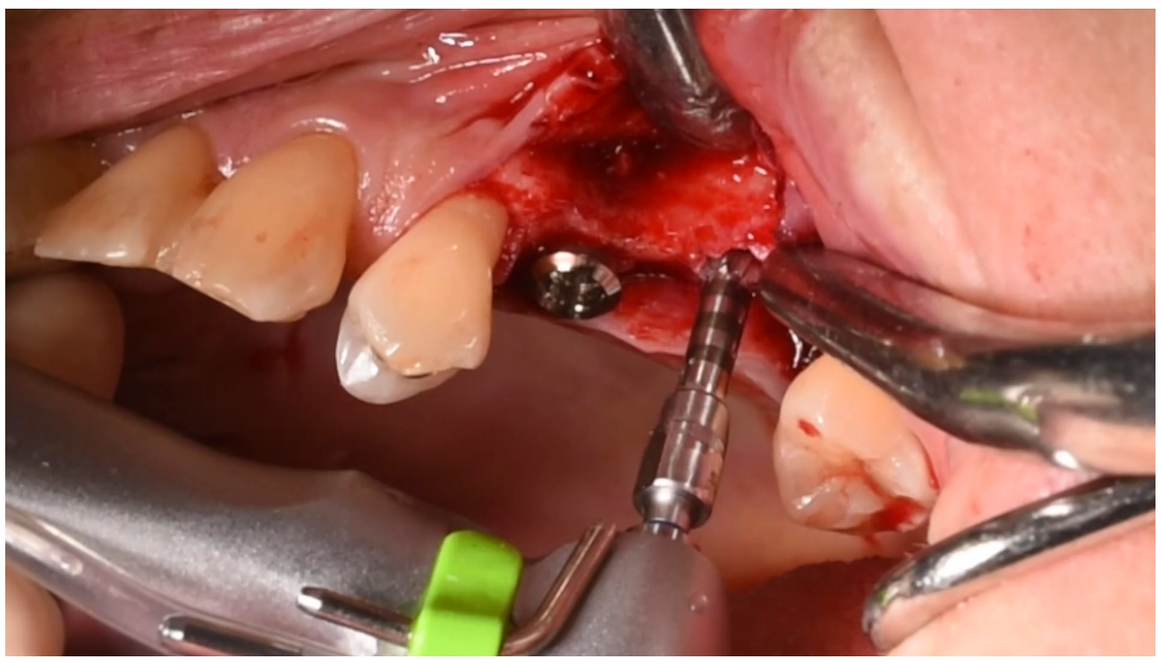
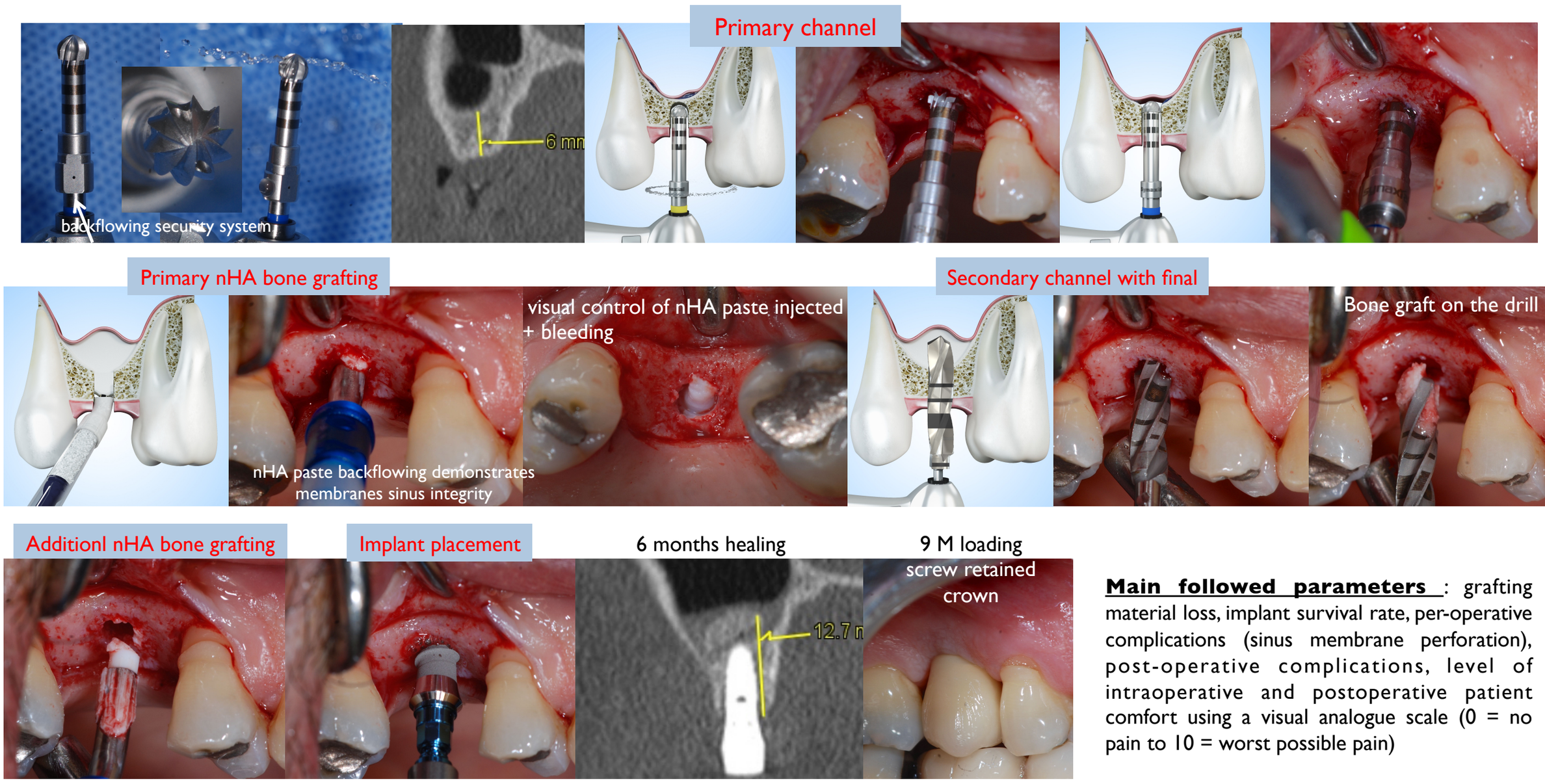
Dricot R. , Blase D. : A new minimally invasive transcrestal sinus floor elevation procedure : the SinusJet Direct intralift - Technique and preliminary results.

Objectives : SinusJet is a new surgical tool developed to achieve minimally invasive hydraulic transcrestal sinus floor elevation (TSFE) without the use of an osteotome or a mallet. The aims of this study is to describe the surgical procedure called **"controlled hydraulic pressurized direct intralift" (CHPDIL)** , and evaluate the clinical results.



Materials and methods

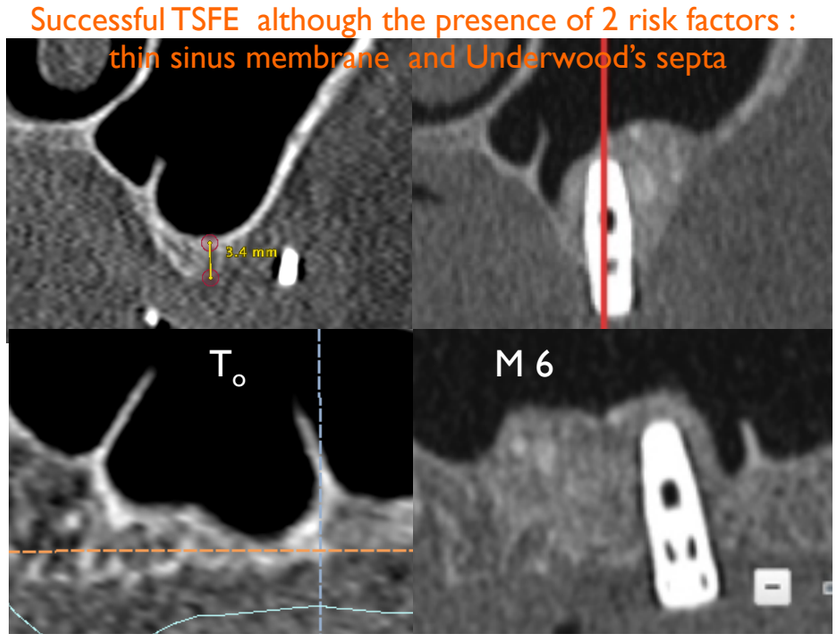
A first drill, the SinusJet drill, creates the primary access channel to sinus. Thanks to its original inner irrigation system, physiological liquid flows through maxillary bone during drilling, unsticks and elevates sinus membrane before the drill penetrates into the sinus cavity. The drill backflowing security system ensures a safe intrabony working pressure. Valsalva's maneuver and visual inspection through the channel control sinus membrane integrity.



Main followed parameters : grafting material loss, implant survival rate, per-operative complications (sinus membrane perforation), post-operative complications, level of intraoperative and postoperative patient comfort using a visual analogue scale (0 = no pain to 10 = worst possible pain)

Medical grade nanocristalline hydroxyapatite aqueous paste (35% nHA - fully synthetic and resorbable) is injected through the primary channel (primary bone grafting) . The augmentation material also contributes to membrane unsticking and elevation from sinus floor.
The secondary channel is created using the final drill of the chosen implant system. The previously grafted biomaterial protects Schneiderian membrane from drill cutting edge.
Another 0,5 to 1 cc of biomaterial is injected through the secondary channel (additional or secondary nHA bone grafting).
The implant is inserted into this secondary channel at the right depth . 4 different implants were used : Xive Friadent , Antogyr Axiom, Straumann, Nobel Biocare.

Successful TSFE although the presence of 2 risk factors : thin sinus membrane and Underwood's septa



Results

40 patients received 56 CHPDIL with simultaneous placement of 96 implants with a mean length of 11.3 +/- 1 mm and a mean follow-up of 2 years.

Mean residual alveolar process height was 4.5 +/- 1.7 mm. A mean sinus floor elevation of 8.4 mm +/- 4.6 mm was performed . The mean bone height after SFE was 12.8 +/- 4 mm. Surgical duration was rather short with a mean time of 96 ± 36 seconds for primary drilling and of 50 ± 9 seconds for bone grafting .

There was no graft lost, no surgical complications nor post-operative complications . No membrane perforation was diagnosed although perforation risk factors were often noticed such as an oblique sinus floor in 49 % of cases, thin sinus membranes (1 mm or less) in 68 %, Underwood's septa in 28 % and the combination of thin sinus membrane and Underwood's septum in 28%.

Implant survival rate was 98.9 % : 1 implant was lot after 3 weeks.

Almost 100% of the patients experienced either no discomfort or were subjected to minimal inconvenience during surgical procedure and post-operative healing period (VAS 0 or 1). Only one patient experienced significant discomfort on one implant during both surgery and post-operative period (7/10 on VAS scale)

Conclusions

Within the limits of this preliminary study, CHPDIL seems to be a predictable and safe procedure for minimally invasive TSFE and immediate implant placement.
The technique is patient friendly, minimizing patient discomfort as its avoids the use of an osteotome or a mallet .
The technique is a practitioner friendly. It simplifies drastically the surgical procedure. It is a fast procedure, minimizing surgical duration as it avoids the use of multiple instruments or drills.
Observations on a larger number of patient and on a longer observation period is needed to support the excellent clinical performance seen so far.

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Disclosure : Dr. Roland Dricot is the Sinusjet designer and the CEO of Synaxial Company