Overview of the discussion

✓ We started initially 40 years ago using various implants, then autographs - rib, ear & iliac crest bone.

✓ Then, in 1994 moved onto lyophilised, deproteinised homograph rib cartilage: first solid & then laminated.

✓ This evolved to correcting tripod tip defects.
Overview continued ...

DISADVANTAGES ...

✓ Ear cartilage too pliable
✓ Iliac crest too rigid: bone absorbed
✓ Autograph rib-cartilage harvesting caused unnecessary donor-site morbidity
Disadvantages

✓ Both autograph and homograph cartilage tended to twist

✓ The longer, thicker & bigger the grafts, the greater the tendency to twist
Research

- Structural engineers use laminated beams to reinforce roof structures; gave us the idea to use laminated rib cartilage instead of mono-units.
- Bone SA supplied pre-shaped 2-mm pliable strips.
- We trimmed, shaped & sutured the strips into a laminated beam.
Research results

✓ Thicker strips re-introduce inherent tendency of graft to resume original shape

✓ Laminated rib cartilage counteracts twisting tendency of mono-units

✓ A lamination proved more resilient than a single layer of equal thickness
Breakthrough ...

- Designed soft solid silicone templates in various combinations
- Each set consists of five to seven templates/sizers of varying width & length
Surgical technique

- Usually use ‘Open Structure’ approach
- Raise skin/soft tissue envelope (S/STE) to the level of radix using a retractor & Joseph scissors to ‘skeletonize’ S/STE envelope
- Level & roughen the base to create a suitable foundation
Technique continued

✓ Insert sizers under S/STE envelope, then mix & match' to gauge the required number of sizers needed to correct the depression

✓ Cross check new profile with pre-operative ‘Mirror' morphed photographs (projected on theatre wall)
Result

The result should invariably correspond to the pre-determined soft silicone sizer/template.
Technique continued ...

- Position & Cottle clamp each pre-selected sizer onto a 2-mm strip of pre-cut rib cartilage mounted on a sterilized non-slip wooden-tongue spatula.

- Trim the cartilage into shape with number 15-blade.
Technique continued ...

- Repeat the trimming process with each successive sizer
- Each cartilage strip should conform to a corresponding sizer
- Place cartilage strips in layers that oppose & cancel the natural curvature of each strip
Technique continued ...

- Suture into position with 4-0 mono-filament polypropylene (Deklene)
- Position suture knot on the under-surface of the lamination away from skin
- Carefully bevel edges of top lamination prior to sliding lamination under the S/STE to prevent graft from curling or deforming
Sometimes cover graft with thin layer of Alloderm or lyophilized pericondrium to soften outline
Result

✓ Compare tentative result against patient’s pre-operative appearance & the ‘Mirror’ morphed preview
✓ Surgery concluded in normal manner by closing the trans-collamella incision with 6/0 fast absorbing plain cat gut
Summary

✓ Documented 172 Dorsal Beam procedures from the beginning of 2003 to July 2007
✓ Medical case history follow-ups and post-operative imagery show that laminations do not bend or revert to original shape of the rib
✓ One case of resorption
Conclusions

✓ Lyophilised rib cartilage lamination, forms a ‘host’ grid for growth of new tissue
✓ Laminations revascularise as does usual grafting material.
✓ Cases documented thus far, meet and conform to patient’s pre-operative expectations
Applications

✓ Use laminations for all revision Rhinoplasty operations where there is deficiency of Central, Septal Support System

✓ Specifically use technique for saddle nose depressions & lowered dorsal profiles in Asian and African noses
Before & after
Psycho-surgery
Started using pre-cut strips for ...

**TIP TRIPOD GRAFTS** ...
- Tip Shield grafts
- Medial Crural Strut grafts
- Lateral Crural Strut grafts
- Caudal Septal extension grafts
- Spreader grafts
Before & after
Before & after
Before & after

[Image of before and after nose surgery]
Before & after
Hump noses

Future research
Further information

TheNoseClinic.com

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