

Use of rib cartilage grafts in rhinoplasty results in patient satisfaction, few complications

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Rib cartilage from human donors is well tolerated as a grafting material in nasal plastic surgery and yields positive functional, structural and cosmetic results, even in complex cases, according to a report in the November/December issue of *Archives of Facial Plastic Surgery*.

"The search for the ideal nasal implant remains an ongoing effort," the authors write as background information in the article. "We desire a substance that is readily available in large quantities; resists infection and absorption; is completely integrated into host tissues; causes little patient morbidity [illness or injury]; and can be molded, shaped or carved with ease." The patient's own cartilage is often the preferred choice, but is sometimes too thin, there is an insufficient quantity or it may cause problems at the site from which it is removed. Irradiated homologous costal cartilage—donor tissue from human ribs that has been treated with radiation to decrease the chances of an [immune response](#) or resorption once placed in a donor—could serve as an alternative.

Russell W. H. Kridel, M.D., of the University of Texas Medical School at Houston and Facial [Plastic Surgery](#) Associates, Houston, and colleagues reviewed the medical charts of 357 patients who underwent primary or revision [rhinoplasty](#) (nasal plastic surgery) using autologous costal cartilage as the principal graft material between 1984 and 2008. The patients were an average of 37 years old and were followed up for an average of 13.5 years (and for a range of four days to 24 years). The

1,025 homologous costal cartilage [grafts](#) and 373 other grafts used were evaluated for warping, infection, resorption (being absorbed back into surrounding tissues) with or without infection, mobility and extrusion (forcing out). Forty-two patients also completed a satisfaction evaluation.

The total complication rate related to irradiated homologous costal cartilage grafts was 3.25 percent, including 10 warped grafts, nine infections, five cases of infective resorption, five non-infective resorptions and three cases of graft mobility. Among the nine cases of infection, two patients received grafts using homologous costal cartilage alone and seven in combination with other materials, so the infection rate related to the use of homologous costal cartilage alone was two of 1,025 (0.2 percent).

"Not only did very few complications occur following the use of 1,025 irradiated homologous costal cartilage grafts in 357 patients after 386 rhinoplasties over 24 years (rate, 3.25 percent), but the rate of complications was no greater than rhinoplasty complication rates when autologous [the patient's own] cartilage grafts are used," the authors write.

During an average follow-up of 7.9 years, 94.2 percent of patients reported being satisfied with the results, considering categories such as their appearance, ability to breathe and quality of life. The irradiated homologous costal cartilage was not associated with any allergic reactions or systemic diseases and also proved to be reliable in patients with autoimmune diseases and in those with complex cases involving repairs of perforated septal tissue.

"The results indicate safety and reliability and justify the convenient use of irradiated homologous costal cartilage grafts for primary and revision rhinoplasty without creating donor site morbidity," or damage to the area

from which an individual's own cartilage is harvested, the authors write. "Irradiated homograft cartilage grafts should be considered as an alternative or even a primary grafting material when the patient does not have adequate quantities of septal or auricular [ear] cartilage remaining to provide the correction or when the shape or quality of such an autologous cartilage does not adequately provide the structure required."

More information: Arch Facial Plast Surg. 2009;11[6]:378-394.

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