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Letter to the Editor

Effect of collagen on large traumatic perforation of tympanic membrane

Sir,

Traumatic perforation of the tympanic membrane (TPTM) is often encountered in primary care or in the emergency department (ED). Despite several therapeutic and surgical interventions have been described in the literature, but the conservative approach of follow-up until spontaneous recovery is the most common choice.[1] We investigated the utility of bovine collagen extraction patching in the large traumatic TM perforation gives better resultthan spontaneous recovery.

The TM is highly sensitive to air pressure changes in external auditory canal, traumatic TM perforation was always seen in otologic trauma. Traumatic perforation of TM may range from pin-hole perforation to moderate or even large sized sub-total perforation depending on the severity of injury sustained. Small perforations are characterized by involvement of one quadrant of pars tensa, moderate perforation involve two quadrant of pars tensa, large perforation involve more than 2 quadrants of pars tensa.

Chemically, bovine collagen is very similar to the human form. Collagen sheet is prepared from bovine collagenous tissue by treating tissues with a series of chemical and enzymatic procedures. This is followed by chemical cross-linking, packing, and gamma sterilization. Collagen sheet is retained in the tissue and gradually absorbed by inflammatory cellular activity; the fibrous tissue is replaced by fibroblasts. Granulation tissue developed at a normal rate and the cellular events were precisely the same as those occurring in normal wounds.[2]

Collagen is becoming a potential candidate because of its good biocompatibility and ability to promote the growth of cells. Collagen is the body's main structural protein of extracellular matrix that contains cell adhesion signal peptide sequence Arg-Gly-Asp (RGD), which is responsible for cell adhesion. As a major substance of the TM lamina propria, collagen fibers maintain the elasticity of TM and conduct sound.[3]

We analyzed 20 patients with traumatic TM perforation out of which 10 patients had small to moderate perforation and the rest had large perforation. Among those with large perforation 5 patients were treated with bovine collagen patch in the outpatient department and others were observed for spontaneous healing. The same comparison was made in the small to moderate perforation group. Other variables which may interfere in spontaneous healing among the study participants were comparable. We observed that there were no significant differences in healing among patients with small to moderate perforation with or without collagen patch. But in cases of large traumatic perforation group collagen patching was found to be significantly better than the conventional wait and watch method. There was significant improvement in the healing process for large sized traumatic perforations.

From our observations we concluded that bovine collagen hastens the recovery of large traumatic perforations. Collagen patching is cost effective and hence more patient compliant. Other than the enhanced healing effect of collagen, the collagen patching procedure is less traumatic and outpatient-based procedure. This procedure also saves the patients from risk of undergoing myringoplasty in case the conservative method of treatment fails.

Though the conservative wait and watch method of treatment for traumatic perforations of TM is largely popular and time-tested, collagen patching is fast becoming a surgeon's choice and patient friendly treatment option for traumatic perforations.

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