

Stem cells and Cellsonic VIPP in fracture non-union repair superimposed with avascular necrosis of neck of the humerus

StemRx Bioscience Solutions Pvt. Ltd., Navi Mumbai
November 2016

A 43 year old female patient had a comminuted fracture of the proximal right humerus due to road traffic accident before 2.5 years. She underwent open reduction of the fracture with internal fixation. With regular physiotherapy exercises, the patient was gradually able to perform routine activities. However, about a year later, the patient had difficulty in right arm and shoulder movements. Investigations revealed fracture of the plate in the humerus as well as non-union of fracture. An MRI revealed avascular necrosis (AVN) of the neck of the humerus. She was advised to undergo joint replacement, however the patient was sceptical of surgical management.

When the patient heard about Dr. Mahajan and StemRx, following detailed consultation with the patient, a combination treatment with Mesenchymal Stem Cells (MSC) and Cellsonic VIPP was planned for this patient to enable natural body mechanisms heal the damage. One session of MSC and 4 sessions of Cellsonic VIPP treatment were done over a period of 2 weeks. 300 shocks of VIPP at level 4 were given at 4 day intervals. The results that we are seeing in the 2nd week are commendable. X-ray shows the healing and hard callus formation. Hard callus formation represents stage three of fracture healing which is usually seen at the 3rd-4th week.



Before and 2 weeks post treatment X-ray. Note the improvement in joint anatomy and soft callus formation

As known, MSCs are potent molecules that can differentiate into various cell types and possess anti-inflammatory and immune-modulatory properties. Literature has demonstrated that both MSCs and shockwave therapy increase expression of growth factors required for neoangiogenesis. We therefore combined the two modalities and are seeing good progress and faster healing in our patient. The combined treatment has ensured angiogenesis as well as cell proliferation, bone remodelling and regeneration.

The patient is pain free now and is gradually being advised physiotherapy to facilitate movements. We will be following up with the patient at regular intervals and report her progress at each stage. By this minimally invasive approach, not only have we prevented the patient from undergoing surgery but have also reduced the recovery period which is indicative of the promising effect of MSCs and Cellsonic VIPP.

Our plan is to report this case for publication in a reputed journal after a follow up period of 3-4 months citing the effect of MSCs and Cellsonic VIPP in AVN and fracture malunion.

In our experience, Cellsonic VIPP is proving effective in multiple conditions in combination with MSCs. We will soon send a comprehensive review of the conditions treated at StemRx.