

**Case Description:** Female Breast Cancer patient with Late-Radiation Tissue Damage

**Introduction:**71 year old female patient radiation to left breast 17 years prior. Residual complaints include pain in the area of the left pectoralis, decreased range of motion left shoulder, loss of sensation in the area of left biceps and triceps.

**Case:** This 71 year old patient experienced long-term loss of function of her Left shoulder as shown by decreased range of motion and pain, loss of sensation in areas of left biceps & triceps. She presents for hyperbaric oxygen therapy for these radiation side effects due to radiation of the same area. She completed 30 hyperbaric sessions at 2.0-2.5 ATA for 90 minutes each, with pre and post assessment as follows:

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| **Parameter** | **Pre-Hyperbaric Treatment**  | **Post-Hyperbaric Treatment** |
| Pain L Biceps Sensation (scale of 1-10; 10 normal) | 4 (abnormal - loss sensation) | 10 (normal sensation) |
| Pain L Triceps Sensation (scale of 1-10; 10 normal)  | 3 (abnormal – loss sensation) | 10 (normal sensation) |
| Pain-free L Shoulder Abduction  | 90 degrees (decreased) | 180 degrees (normal) |
| Pain- free L Shoulder Flexion | 45 degrees (decreased) | 170 degrees (normal) |
| Pain L Pectoralis (scale 1-10) | 4  | 0 |

Although not related to her post-radiation tissue damage this patient also had chronic sinusitis with purulent green drainage. Before treatment with hyperbaric oxygen therapy drainage was rated as a 7 on a scale of 1-10 and after complete of her treatments was rated as a 2 on the same scale.

**Discussion:** Hyperbaric oxygen therapy has been shown to restore blood supply by growth of new capillaries, assist with nerve healing, increase of fibroblasts thus collagen production and to enhance the action of white blood cells. These mechanisms of hyperbaric oxygen therapy were evidenced by this patients resolution of pain, restoration of nerve sensation and return of pain-free range of motion in the areas that she had prior radiation.

**Conclusion:** Hyperbaric oxygen therapy is an effective treatment for this patient for post-radiation damage 17 years after radiation to the left breast.