Dacryocystorhinostomy has been accepted as a highly successful procedure in dealing with epiphora secondary to nasolacrimal duct obstruction with an average failure rate of 10 %. Fibrous tissue growth, scarring and granulation tissue obstruction of the osteotomy area is the most frequent cause of failure.

Several studies have been tried to increase the success rate of DCR surgery by improving the long lasting surface area of the osteotomy opening. This was the aim of our study also. To achieve this aim, we planned to replace the bicanalicular silicone stent by a wider diameter T-shaped tube at the osteotomy opening for three months and to compare the results of using this tube with the results of conventional DCR surgery.

Success of surgery was evaluated subjectively by asking patients about relief of symptoms and objectively by examining tear meniscus, resistance to irrigation and by endoscopic evaluation of the osteotomy area. The tube was removed after three months and follow up was done for 9 months after surgery. The study passed through three stages.

Twelve patients were done using the standard DCR technique and 35 patients were done using the T-tube.

The first 5 patients of the T-tube group were done using a rubber T-tube only for 3 patients. Bicanalicular silicone stent was used with the T-tube for another two patients. The success of surgery for these patients was 20%. The most significant problems were adverse tissue

reaction to the rubber material of the T-tube and canalicular obstruction due to absence of the bicanalicular silicone stent. So, we decided to stop using this rubber tube.

For the next thirty patients of this group, we used a hand-made silicone T-tube in addition to the bicanalicular silicone stent. The results were very encouraging with a success rate 96%. The remaining osteotomy area was about 24% of the created ostium during surgery.

For the control group, the success rate was 58% and the final ostium was about 12% of the formed ostium at the end of surgery.

Our study concluded that using a wide diameter silicone tube at the osteotomy opening prevents fibrous tissue proliferation and scar formation from closing the osteotomy area. This modification results in the formation of a reasonably wide long-term osteotomy opening and increases the success rate of DCR surgery. In addition, using this tube reduces the fibrous adhesion between the osteotomy site and the nasal septum as well as constrains scarring around the opening of the common canaliculus.