Methods and Materials

A systematic review of the published literature for success and complication data on endoscopic versus external DCR was undertaken. We searched the Cochrane Ear, Nose and Throat Disorders Group Trials Register, the Cochrane Central Register of Controlled Trials (CENTRAL), The Cochrane Library, current issue), MEDLINE (1966 onwards) and EMBASE (1980 onwards). Randomized controlled trials (RCT), cohorts and cases series were selected. Meta-analysis was performed using the Mantel-Haenszel method on risk ratio data extracted from the selected trials.

Results

There was one randomized controlled trial comparing endoscopic versus external DCR. 15 cohorts were also found on the same comparison or between mechanical and laser endoscopic techniques. The literature is replete with cases series describing local surgical techniques. Reported success in case series were:

- External DCR 80 – 100%
- Mechanical endoscopic DCR 74 – 100%
- Laser endoscopic DCR 95 – 100%

A meta-analysis was undertaken for RCTs and cohorts. The RCT did not favor a technique (Fig 2). A meta-analysis of 251 external cases compared to 222 endoscopic (laser) DCRs favored the external approach (Z=2.52, P=0.0101) (Fig 3b). A combined 401 patients with endoscopic (mechanical) surgery had similar outcomes to external DCR (Z=1.15, p=0.25) (Fig 3b). Bleeding and infection rates were similar (Fig 4).

Conclusions

DCR, when performed by an experienced surgeon, has a high success rate and low complication rate regardless of approach. Mechanical (non-laser) endoscopic techniques are comparable to external results. The evolution of endoscopic otolaryngologic DCR has it’s foundations on maximal bone removal from around the lacrimal sac in an attempt to mimic the external approach from an endoscopic route. Endoscopic laser DCR often utilizes CO2 laser via a microscope and can be more endonasal than endoscopic. The ability to which thick bone can be removed by this approach is often questioned. In studies on DCR, a suitably powered RCT is unlikely to be performed. Combining cohort studies for meta-analysis is limited by the lack of a rigid framework for quality assessment, as applied to systematic reviews of RCTs. However, conclusions can be made, as most prospective and retrospective cohorts use similar endpoints to define success or failure, and there was good homogeneity of the mechanical v external DCR cohort studies (Chi2=6.65, p>0.05). The risk of hypertrophic scars, webs and unacceptable cosmesis can be avoided by the endoscopic approach. This is especially true when the majority of revision surgery can be performed successfully via an endoscopic approach. EBM: 2a

Bibliography