The aim of this study was to evaluate a sinus lift via crestal approach (SLVCA) case series, performed with rotary instruments and hydraulic pressure, analyzed under endoscopic control. Sixteen patients (11 female, 5 male, mean age 47.13±8.07 years) candidates for SLVCA were enrolled in this study. Twenty-two cylindrical two-piece implants were placed. After a suitable period of time needed for the consolidation of the graft (mean value 5.78±1.49 months), the bone augmentation was assessed by means of intraoral X-ray exams before the surgical procedure of re-entry. After a functional load with temporary acrylic fixed prosthesis, on Peek abutments, for a span of 4 months, the cases were finalized with cemented metal-ceramic prosthesis (10 single crowns, 6 bridges). The post finalization follow-up was at 12 months. During the perforation of the sinus floor via rotary instruments no perforations of the sinus membrane were observed either during the hydraulic detachment or simultaneous filling of the subantral space with the graft material. Survival rate was 94.5% since one fixture was lost, but immediately replaced with a new one. At the one-year follow-up the clinical and radiological appearance of the soft and hard tissues was optimal and no pathological signs were recorded. The SLVCA performed with rotary instruments and hydraulic pressure is a reliable grafting procedure for oral rehabilitation of maxillary edentulous sites.