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## Piezosurgery in pediatric neurosurgery.

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### Author information

#### Abstract

**BACKGROUND:** Piezosurgery (PS) gained an increasing diffusion in neurosurgery. In pediatric neurosurgery, the experience is limited to craniostylosis surgery. The present study assesses PS in the pediatric population considering outcome and complications also in cranial and spinal procedures.

**METHODS:** All consecutive craniotomies and laminotomies, performed with PS (group A) or conventional osteotomes (group B) in the 2014-2017 period, have been reviewed. The following variables were analyzed: dural tears, estimated blood loss (EBS) and need of transfusion, cosmetic outcome (Sloan's score), operative times. A review of the pertinent literature has been included.

**RESULTS:** 172 children were enrolled, 90 belonging to group A and 82 to group B. The mean follow-up was 2.1 years. A statistically significant difference in favor of group A was found about EBS (105 vs 113 ml) and late outcome (Sloan's class A 98.5% vs 91.5%). PS also reduced the risk of dural tears (1 vs 7 cases in group A and B, respectively) and blood transfusion (52% vs 55.5%) but without statistical significance. The operative times were significantly shorter in group B (13 vs 23 minutes), though the newer PS plus (PSP) was demonstrated to significantly shorten these times compared with the traditional PS (3.5 vs 6.5 minutes for orbitotomy, 7.5 vs 9.5 minutes for hemi-craniotomy).

**CONCLUSIONS:** PS is a safe and effective tool that can be specifically recommended for bone splitting and graft, laminotomy and craniotomy in cosmetically eloquent areas. The limit of operation times can be overcome by a learning curve in neurosurgery and PSP.

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**KEYWORDS:** Piezosurgery; bone graft; bone harvesting; craniofacial surgery; craniotomy; osteointegration

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