

## **Open minimally invasive parathyroidectomy with use of intraoperative ultrasonography.**

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### **Introduction**

Surgical treatment is so far the only radical and effective way to treat primary hyperparathyroidism. The most common cause of this disease is the presence of a single adenoma of the parathyroid gland, in which case the removal of the pathologically altered gland should be performed.

### **Discussion**

This study presents the results of open minimally invasive parathyroidectomies (OMIP) with use of intraoperative ultrasonography (IOUS). OMIP procedure was conducted in 15 patients (12 women and 3 men) operated in our center, in 2014-2018, due to a single parathyroid adenoma. The exclusion criteria were: ambiguous results of preoperative imaging, patients with suspected multiglandular disease and patients with thyroid pathology. Preoperative imaging studies were performed in all patients to accurately locate the pathologically changed parathyroid gland ( $^{99}\text{Tc}$ -MIBI scintigraphy and neck ultrasonography). During the operation to visualize the pathologically altered gland, an IOUS (Pro Focus 2202 BK Medical, 5-10 MHz intraoperative transducer) was used. Then, a small cut length of 2-3 cm over the pathologically changed gland was made and the strap muscles were dissected. To assess the radicality of the procedure, the intraoperative level of parathyroid hormone (IOPTH) was determined 10 min. after adenoma resection and again IOUS was performed.

The mean age of patients was  $52.27 \pm 11.02$  years. Preoperative intact parathyroid hormone (iPTH) and calcium (Ca) levels were  $307.58 \pm 262.35$  pg/ml and  $2.975 \pm 0.28$  mmol/l, respectively. IOPTH level was  $50.25 \pm 66.29$  pg / ml. Postoperative Ca level was:  $2.53 \pm 0.26$  mmol/l. No patient had surgical complications. Three patients required prolonged hospitalization for symptomatic hypocalcemia. The mean operation time was  $25.31 \pm 7.23$  min.

### **Conclusions**

Open minimally invasive parathyroidectomy using intraoperative ultrasound is a safe procedure of primary hyperparathyroidism treatment due to the presence of a single parathyroid adenoma.

**Kategoria:** K2. Wyzwania chirurgii XXI wieku – możliwości i ograniczenia / Operacje z wykorzystaniem technik minimalnie inwazyjnych / Twenty-first century surgery challenges – possibilities and limitations / Operations using minimally invasive techniques