Minimally invasive parathyroidectomy is the procedure of choice for primary hyperparathyroidism due to parathyroid adenoma. Localization of the offending adenoma in minimally invasive parathyroidectomy (MIP) has been described in the literature aided by isotope, tele-escpoe or ultrasound guidance. We present a prospective study of two techniques based on surgeon experience. Thirty patients diagnosed with primary hyperparathyroidism at the Mater hospital in Dublin, Ireland were randomized to have a minimally invasive parathyroidectomy using surgical sonography (MIPUSS) or the conventional unilateral open procedure (OP) over a two year period. The age, sex and serum calcium/parathormone were comparable in both groups. There was no significant difference in complications between the two groups with temporary hypocalcemia occurring in 3 patients undergoing unilateral neck exploration and in 2 MIPUSS patients. There was one transient episode of recurrent laryngeal neuropraxia occurring in the OP group which resolved at 30 day follow-up. The incision size, operating time, hospital stay, and required post-operative analgesia were all markedly reduced in the MIPUSS group. In conclusion, MIPUSS is safe, effective and has advantages in terms of operating time, incision size and early discharge.

Key Word:
Minimally invasive parathyroidectomy, surgical sonography