Aim: To conduct a meta-analysis comparing two minimally invasive techniques; Video Assisted Minimally Invasive Parathyroidectomy (VAMIP) and Open Minimally Invasive Parathyroidectomy (OMIP).

Method: A systematic review and meta-analysis were carried out in line with the Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) Guidelines. Databases from MEDLINE, EMBASE, CINAHL identified Randomised Controlled Trials (RCTs), cohort and observational studies that compared VAMIP and OMIP. The primary outcome measures assessed were the VAS score 24 hours after surgery, conversion of the operation to open, failure rates and analgesic consumption. Secondary outcomes were operative time, hospital stay length, and scar length. These studies’ data were extracted and statistically analysed.

Results: The literature search yielded 104 studies of which 4 were included, enrolling 903 patients in this analysis. A significant difference was found regarding rates of conversion to open parathyroidectomy between the two groups, with the OMIP group demonstrating fewer conversions (MD= 3.52, CI= (2.04–6.08), P< 0.00001). No statistically significant differences were found between the two groups when comparing VAS score post-op 24hrs (MD= -1.75, CI= (-9.8–6.3) P= 0.67), consumption of analgesia (OR= 0.49, CI= 0.07–3.54, P=0.48) or failure rates (OR= 1.81, CI= 0.58–5.72, P= 0.31). OMIP had quicker operative times and similar complication rates and scar lengths to MIVAP.

Conclusions: OMIP was seen to require less need to convert to open parathyroidectomy with shorter operative times and similar complication rates and scar lengths to MIVAP. More studies are required to evaluate the superior technique for parathyroidectomy.