

## Original Research Article

**Minimally invasive, endoscopic assisted, parathyroidectomy**Ashutosh Gupta<sup>1</sup>, Gunjan Agrawal<sup>2\*</sup>, Shantanu Tiwari<sup>3</sup>, Vivek Choudhary<sup>4</sup>, Manish Sahu<sup>5</sup>, Kshitij Verma<sup>6</sup><sup>1</sup>Professor Surgical Oncology, Regional Cancer Center, Pandit JNM Medical College, Raipur (C.G.), India<sup>2</sup>Assistant Professor Surgical Oncology Regional Cancer Center, Pandit Jnm Medical College, Raipur(C.G.), India<sup>3</sup>Senior Resident ,Surgical Oncology Regional Cancer Center,Pandit, Jnm Medical College, Raipur (C.G.), India<sup>4</sup>Dean And Director, Regional Cancer Center, Pandit, JNM Medical College, Raipur (C.G.), India<sup>5</sup>Senior Resident Surgical Oncology, Regional Cancer Center, Pandit JNM Medical College, Raipur (C.G.), India<sup>6</sup>Senior Resident ,Surgical Oncology, Regional Cancer Center, Pandit JNM Medical College, Raipur (C.G.), India

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**Abstract**

**Background:** Cervical cancer and various other lesions leading to the development of cervical cancer including SIL (squamous intraepithelial lesion) have been seen to be associated with the Human Papillomavirus. Various previous literature and laboratory works have confirmed the association of HPV with cervical cancer. DNA of the Human Papilloma Virus is seen in approximately 96% of the detected cervical cancers

**Objectives:** The present study depicts the results of the study conducted using HPV DNA for the detection of cervical cancer in a female population.

**Materials and methods:** The present study depicts the results of the study conducted using HPV DNA for the detection of cervical cancer in a female population. The females were recalled after 7 days of the initial examination. Specific focus was kept on HPV 18, 16, 33, 31, 35, 51, 45, 56, and 52. The results were depicted as either positive or negative. Detailed history regarding pregnancies, abortions, and live births were taken from all the included 96 subjects. The data collected were subjected to statistical evaluation and the results were formulated.

**Results:** 96 study subjects a total of 229 deliveries were seen. In 229 deliveries 53 births were cesarean (23.14%) and 176 were normal deliveries (76.85%). In maternity-related outcomes, 48.95% of subjects admitted that they suffered anxiety during their delivery (n=47), whereas, 39.58% of subjects had anemia (n=38). In infant-related outcomes, out of a total of 96 deliveries, 6.11% of subjects had pre-term births (n=14). Live births were 72.48% (n=166) and 21.39% were fetal death (n=49). Also, a total of 40 abortions were reported in 96 subjects. Concerning the results of the HPV DNA analysis, the positive results were reported in only one female of 50 years and the subject was a post-menopausal female. The subject got married at the age of 30 years.

**Conclusion:** The present clinical study concludes that HPV DNA although is a rare entity but has life-threatening effects on females, and hence comprehensive evaluation and testing of females for cervical cancer should be done with the tests providing rapid and reliable results to allow early detection and treatment.

**Keywords:** Birth Outcomes, Cancer Screening, Cervical Cancer, Fetal Death, HPV DNA.

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**Introduction**

Primary hyperparathyroidism (PHPT) is defined as symptomatic hypercalcaemia due to excessive parathyroid hormone (PTH) secretion in the absence of secondary or tertiary causes. Surgical management involves parathyroidectomy, which has shown to improve health-related quality of life.[1] Conventional surgical practice has been collar incision with bilateral neck exploration and a four-gland evaluation approach. This operation has a cure rate as high as 97% while maintaining a complication rate of around 1–2% [2]. However, 80 to 85 percent of cases of PHPT are caused by a single adenoma. As such, the concept of performing a bilateral exploration in order to visualize all four glands has been argued to be excessive since in the majority of cases, there is only one abnormal gland [3]. Most endocrine surgeons agree that an incision of 2.5 cm or less with minimal dissection (adenoma excision and no dissection of the normal glands) is considered as minimal invasive

hyperparathyroidectomy. The use of an endoscope with or without the use of a robotic system to perform parathyroidectomy is changing trends in minimal invasive hyperparathyroidism. Total endoscopic parathyroidectomy was first described by Gagner *et al.* in 1996 [4]. Minimal invasive endoscope assisted hyperparathyroidectomy take advantage not only of the targeted approach, but also of the endoscopic light and magnification that allows performing the same intervention through a very minimal incision [5,6]

**Case report**

We are presenting a case of 15 year old male who was a known case of bilateral slipped capital femoral. He was operated for the same and having pus discharged from operated site and pain in lower limb since 1 month. CECT scan revealed generalised osteopenia of bones with well defined expansile lytic lesion with thinned out cortex and no reactive sclerosis was noted involving multiple bones, suggestive of Brown's Tumour. There was a small sized abscess measuring 6.4 \*2.5 cm. at multiple planes in left upper thigh. MRI and CECT neck revealed well defined oval shaped hypodensity at right parathyroid gland suggestive of parathyroid adenoma. The serum calcium level was 16.61mg/dl and serum parathyroid hormone level was 1400.30 pg/ml. In FNAC report the lesion was diagnosed as parathyroid

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adenoma. We decided to perform endoscopic assisted minimally invasive parathyroidectomy under general anaesthesia.

**Technique:** The patient was taken under general anaesthesia and positioned in supine position with the neck in slight extension. The surgical team is composed of the surgeons and two assistants, one of whom handles the endoscope. The need for at least three surgeons has been considered to be one of the main limitations of this approach. A small (1.5-2.0 cm) skin incision was performed between the cricoid cartilage and the sternal notch, in the midline. The skin incision is usually higher than in conventional cervicotomy and can also be modulated on the basis of the preoperative ultrasound findings. The thyroid lobe was separated from the strap muscles with small conventional retractors (Farabeuf retractors), which were also used to maintain the operative space. With this purpose, the thyroid lobe is medially retracted while the strap muscles on the affected side are retracted laterally. At this point, the endoscope (5 mm, 30°) and the small surgical instruments are introduced through the single skin



Fig 1: Port insertion

incision without using any trocar (fig1). The endoscope is held in position with both hands by the assistant. The absence of any external support allows changing the position of the endoscope in relationship to the particular needs of the dissection. This represents an important advantage of a video-assisted procedure over purely endoscopic techniques. The first step of the procedure consists of complete freeing of the thyroid gland from the strap muscles, in order to have good exposition of the parathyroid sites (fig2). After identifying the inferior laryngeal nerve in the involved side, a targeted exploration was usually carried out to identify the abnormal gland that was localized preoperatively. After identification, the affected parathyroid gland was bluntly dissected under endoscopic vision by using dedicated spatulas and a spatula shaped aspirator. The pedicle of the adenoma is usually clipped with titanium clips or ligated with conventional suture. After cutting the pedicle, the adenoma was extracted through the skin incision. IO-PTH assay should confirm the removal of all pathologic tissue.



Fig 2: Endoscopic view

#### Discussion

Until 1970 bilateral neck exploration with identification of four glands remained the gold standard in parathyroid surgery [7]. In experienced hands, this approach has a cure rate of more than 95% with minimal morbidity, which is usually less than 3% [8]. But now a days minimal-access parathyroidectomy is the current method of choice for 92% of members of the international association of endocrine surgeons [7,9,10]. The concept of minimally invasive techniques is based on the fact that 85% of patients will have single-gland disease. The new minimally invasive techniques is targeted on one specific parathyroid gland. The morbidity associated with a standard four-gland parathyroid exploration could be minimized with a less invasive procedure while maintaining the same level of success at curing the disease [11]. There is still a controversy about the appropriate surgical approach to PHPT. While MIP has gained much popularity, proponents of OP cast doubt on its long-term success and state that targeting a single gland leaves other morphologically abnormal glands behind to cause recurrence at a later date [12]. Yet, at least 80% of all patients with PHPT will have a single adenoma responsible for their hypercalcemia [13, 14]. Therefore, this calls into question the utility and risk benefit ratio for exploring both sides of the neck when such a high percentage of patients will have a single adenoma. In one of the largest series of patients with PHPT, Udelsman and colleagues found that MIP was superior to OP due to an improved cure rate, decreased complications, and decreased costs [13]. Recently, Norman et al published an even larger series, and came to the opposite conclusion, finding the failure rate with MIP unacceptably high [15].

In another study by Udelsman MIP has been shown to be the superior approach. There is a two-fold higher complication rate (3.0%) in the conventional approach compared with that in MIP (1.2%) although the risk of ipsilateral recurrent laryngeal nerve injury is similar (0.7% and 0.8% respectively) [16]. Schneider DF and colleagues came to conclusion that MIP was equivalent to OP for both persistence and recurrence and the overall number of failures (persistence +

recurrence) was again similar between the two groups (2.7% MIP vs. 1.9% OP) [17].

#### Conclusion

In conclusion, patients with PHPT due to parathyroid adenomas could be managed by MIEAP in an easy and safe surgical technique and short operative time through a small and esthetic incision. Also, this technique has the potential advantage to provide light, magnification in addition it shows less postoperative pain, hypocalcemia and has better cosmetic results due to less postoperative scarring in the neck and higher patient satisfaction compared to open non-endoscopic technique and allowing for safer reoperation if needed.

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