Objective The purpose of this study was to retrospectively analyze the feasibility of the surgical management of the carotid artery in advanced H&N cancer with carotid invasion.

Subjects and Methods A total of 79 patients who underwent surgery for carotid artery dissection and/or resection were retrospectively analyzed in this study. Thirty-two patients (40.5%) received surgery as initial treatment, and 47 patients (59.5%) had surgical treatment for recurrences. Forty-four patients (55.7%) were treated with surgery alone, while surgical treatment was followed by postoperative radiotherapy in 15 patients (19%) and chemoradiation in 20 patients (25.3%). Intraoperative dissection and preservation of the carotid artery was achieved in 69 patients (87.3%). Ten patients underwent carotid resection with/ without reconstruction (12.7%). The carotid resections were reconstructed using the greater saphenous vein (n=7) or Expanded Polytetrafluoroethylene (ePTFE, n=2).

Results Recurrent disease developed in 41 patients (51.9%), of whom 4 had local recurrence, 12 had regional recurrence, 17 had distant metastasis and 8 had both local and regional recurrence. The cumulative 2- and 5-year overall survival rate were 78.5% and 34.2%, respectively, and the disease-specific survival rates were 81% and 48.1%, respectively. The overall perioperative mortality rate was 6.3% (5 of 79 patients). There was no patient who had major neurologic sequelae immediately after surgery. Four patients (5.1%) developed major neurological problems after carotid blowout.

Conclusion Surgical treatment of the carotid artery in selected patients can provide locoregional control and the possibility of prolonged disease-free survival with acceptable morbidity.
Background: In head and neck squamous cell carcinoma, invasion of the carotid artery is a severe mortality predictor. Carotid resection is regarded as a high risk surgical procedure and only a few series report complications and short term follow-up information.

Objective: to report an updated experience of 19 patients who underwent resection of primary tumor and neck dissection for squamous cell carcinoma with concomitant internal carotid resection and reconstruction. The present study has analyzed overall survival rates, primary patency of the reconstructions, vascular and nonvascular complications, radiotherapy dosing as well as late follow-up and outcomes.

Methods: From September 1997 to December 2011, nineteen patients with advanced squamous cell carcinoma with internal carotid artery invasion were submitted to resection and concomitant vascular reconstruction in a single cancer center. Patient follow-up was done by means of periodic outpatient returns; where clinical and duplex scan evaluations were performed to study graft patency.

Results: The average length of follow-up was 23.3 (± 34.4) months. Non-vascular complications occurred in 6 patients (31.6%). Only 1 (5.3%) vascular complication was observed, resulting from the immediate occlusion of the carotid graft. All patients were submitted to pre-operative, adjuvant or curative intent radiotherapy during the course of the oncologic treatment. Overall disease free survival, primary patency and survival with patent graft rates in 5 years were respectively 12.9%, 93.1% and 13.0%. Three patients (15.9%) are still alive; all without tumor recurrence, and present a disease-free long-term follow up with patent grafts, 21 months, 68 months and 151 months after surgery.

Conclusion: Aggressive surgical approach for patients with advanced squamous cell head and neck carcinoma with internal carotid invasion can lead to cure in a select group of patients.
THITY-TWO YEAR EXPERIENCE ON RESECTION OF CAROTID BODY TUMORS

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Introduction. Carotid body tumor (CBT) is not a rare lesion found at high altitude regions. Its treatment is basically surgical resection. This study intended to review a long time experience on surgical treatment of these tumors.

Materials and Methods. A retrospective review of 198 CBT operated on 181 patients by one surgeon at the Social Security Hospital in Quito, Ecuador, South America, from 1981 to 2013, was done. One patient with bilateral tumor is waiting for surgery and other 25 patients were not operated for medical reasons or advanced age. Mean age was 52 years (22-83); 178 (90%) were females and 20 (10%) males. All patients came from the Andean plateaux. Mean size was 4.2 cm (1-8). Shamblin type distribution, described in 170 patients, was: Type I 27, type II 108 and type III 35. Computed tomographic angiography, used in the last 80 patients, was the most reliable diagnostic imaging study.

Results. The surgical procedure included initial dissection of the upper pole of the tumor between the internal and external carotid arteries, dissection of these arteries from the top down, eventual division. Level II lymphadenectomy was performed systematically. The lesion was completely resected in all but one case of fixation to the base of the skull. The external carotid artery was divided in 76 patients to offer better exposition and easier resection of the tumor. Harmonic scalpel was used in the last 50 cases. Twenty-two, mostly minor, intraoperative carotid lesions were successfully managed. Mean operative time was 181 minutes (75-390). No postoperative complications occurred in 146 (74%) patients but adjacent cranial nerve dysfunction (IX, X, XI and sympathetic), mostly transient, occurred in 25 (13%) patients. There was no operative mortality. Six cases were considered malignant: three with local disease and lymph node involvement, two with lung metastases and one with extensive irressectable local disease.

Conclusions. High index of suspicion and use of computed tomographic angiography are important points for diagnosis. The use of this systematic surgical technique allowed us to perform generally complete tumor resections, with unusual operative vascular accidents, low morbidity and no mortality.
Purpose/Objective: Human papillomavirus 16 (HPV16) non-European (NE) variants have been shown to have an 11 fold increased association with a cervical cancer diagnosis when compared to HPV16 European (E) variants. We investigated whether specific HPV16 variants are associated with different clinical characteristics of head and neck squamous cell carcinoma (HNSCC) seen in ethnically diverse patients treated within an inner city health-care system. To our knowledge, this presents the largest HPV16 variant study in HNSCC done to date.

Materials/Methods: We prospectively tested 61 HPV16 DNA positive HNSCC using type-specific probes designed to amplify fragments of the HPV16 genome. PCR products were confirmed by gel electrophoresis, purified and submitted for sequencing. HPV16 variant lineages were designated European (E), African (Af), North-American (NA), Asian-American (AA) based on the number and location of single nucleotide (SNP) changes diagnostic for the different HPV16 lineages.

Results: Patient specimens included 31 oropharyngeal, 17 laryngeal/hypopharyngeal and 13 oral cavity/nasopharyngeal SCC. HPV16 E variants were detected in the majority of HPV16 positive tumors (N=43, 71%). African-American patients were slightly less likely to present with a NE variant (N=11, 61%) compared to White/non-Hispanic (N=17, 71%) or White/Hispanic (N=13, 76%) patients, although the differences were not significant (Fisher’s exact test p=0.599). HPV16 E variants were detected more often in higher stage HNSCC (TNM stage IV; N=30, 75%) compared to lower stage tumors (TNM I-III; N=13, 62%, p=0.378), and were also more prevalent in patients with node positive (N=30, 77%) compared to N0 disease (N=13, 59%; p=0.158). Despite presenting with more advanced disease at diagnosis, HNSCC harboring HPV16 E variants showed no difference in overall or cancer survival, but were somewhat less likely to recur locally or regionally than HNSCC with NE variants although not significantly (log-rank test p=0.167).

Conclusions: HPV16 E variants in our patient population were found more often in HNSCC with higher stage disease with evidence of metastatic lymph nodes. This is contrary to what is observed with cervix cancer. However, despite presenting with more advanced disease, HPV16 positive HNSCC with E variants were less likely to recur. Given the small study sample size, additional investigation and follow-up is needed to confirm the role of HPV16 variants in HNSCC.
THE PREVALENCE OF HUMAN PAPILLOMA VIRUS IN NON-OROPHARYNGEAL HEAD AND NECK SQUAMOUS CELL CARCINOMA

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Introduction:

Certain strains of Human Papilloma Virus (HPV) are known to be associated with oropharyngeal squamous cell carcinoma (SCC). In Western populations, HPV-positive oropharyngeal SCC patients have repeatedly been found to be younger and less likely to have used tobacco than HPV-negative patients. HPV has also been found in non-oropharyngeal head and neck SCC (HNSCC), but its oncogenic role and epidemiologic significance are poorly understood. The purpose of this study was to determine the prevalence of HPV in cases of non-oropharyngeal HNSCC and to begin to analyze the demographic characteristics of such patients.

Methods:

This was a retrospective review of HNSCC patients diagnosed and treated at a freestanding comprehensive cancer care center from 2007-2013. Demographic, pathologic, and anatomical data were collected by means of a detailed chart review. HPV positivity was determined by p16 expression and confirmed by in-situ hybridization. Results were analyzed using Fischer’s exact test and Students T-test as required. A p-value of <=0.05 was considered significant.

Results: 420 cases of head and neck SCC were identified, of which 243 cases were non-oropharyngeal. These included 151 oral cavity (62%), 18 hypopharynx (7%), 64 larynx (26%) and 10 overlapping lesions (4%). 16% of non-oropharyngeal SCCs were positive for HPV as compared to 65.6% of oropharyngeal cases (p<0.001). Among non-oropharyngeal subsites, the HPV positivity rate was 15.9% for oral cavity SCC (15.5% for oral tongue, 15% for floor of the mouth, 12% for buccal gingiva/ vestibule); 22.2% for hypopharyngeal SCC; and 12.5% for laryngeal SCC. There was no statistical difference in HPV-positivity based on anatomical sub-sites in non-oropharyngeal cancers (p= 0.52). When HPV-positive non-oropharyngeal SCC patients were compared to HPV-negative non-oropharyngeal SCC patients, there was no difference in age (p=0.98), gender (p=0.36), race (p=0.77), overall stage (p=0.29), or grade (p=0.32). A significantly greater percentage (40.5%) of HPV-positive non-oropharyngeal cancer patients had N2/N3 disease compared to HPV-negative non-oropharyngeal cancer patients (25%, p=0.02). The HPV-positivity rate for non-oropharyngeal cancers did not differ based on tobacco use (18.6% in never smokers, 19.4% in former smokers, and 19.3% in current smokers, p=0.99).

Conclusion:

While, in the US, HPV seems to be associated with the majority of oropharyngeal HNSCC, this is not the case with non-oropharyngeal HNSCC. Nevertheless, a considerable number of non-oropharyngeal HNSCC specimens do appear to be HPV-positive. HPV positivity does not appear to differ significantly between the various non-oropharyngeal subsites. In addition, HPV positivity of non-oropharyngeal HNSCC does not appear to correlate with age or tobacco use.
Background:

Human papilloma virus (HPV) associated Oropharyngeal cancer is rapidly becoming a significant health problem in the UK. The incidence rates have more than doubled in the last 10 years. It is caused by the same high risk strains of HPV (16 & 18) that cause cervical cancer.

Premalignant lesions exist in cervical dysplasia and its presence makes screening feasible. A premalignant lesion has not been identified yet in HPV positive OPC. The identification of a premalignant lesion in HPV positive OPC would indicate that screening techniques may be feasible for early identification.

Methods:

HPV DNA identification using Polymerase Chain Reaction (PCR) and p16 immunohistochemistry of 118 tonsil cancer samples and 125 normal tonsils, using a detailed sampling technique.

Detailed histopathologic sectioning and review of normal and tonsil cancer specimens for dysplasia (severity graded using the WHO classification). Dysplastic areas were stained for p16 and HPV--in situ hybridization (ISH).

Results:

In a pilot cohort of 125 patients undergoing tonsillectomy for non-cancer purposes, 9% showed HPV positivity for HPV DNA by PCR, 2% of which were HPV16. HPV positivity was demonstrated in specimens from base of tongue, tonsils, oral rinse and pharyngeal wall swabs. HPV strains identified were HPV 4, 16, 34, 35, 52, 66.

One case of dysplasia was identified and one with hyperplasia, both were HPV+, p16+. This is the first time a case of HPV+ dysplasia in the normal tonsil has been reported in the literature.

In a cohort of 118 tonsil cancers, we also identified dysplastic lesions within the tumour in 47.1% (24/51) of HPV positive OPC cases, compared to 44.8% (30/67) in HPV negative OPC.

Conclusion:

This is the first time HPV positive dysplasia has been identified in a normal tonsil. Further molecular analysis of this may yield insights into mechanisms of HPV carcinogenesis in tonsils.

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Introduction: In order to improve survival of oropharynx squamous cell carcinoma (OPSCC) we changed primary treatment chart from primary radiation therapy (RT) followed by surgery if post-RT viable tumor tissue to primary tumor surgery and neck dissection followed by RT gradually around the year 2000. Urogenital high risk (hr) human papilloma virus (HPV) has become an important risk factor, and probably causative agent, for OPSCC. HPV-caused OPSCCs have a far better prognosis than HPV- OPSCC patients. We have previously shown that the incidence of OPSCC HPV+ carcinoma increased around the year 2000. We have found it pertinent to evaluate the five year OPSCC survival in the period 1992-1999 versus the period 2000-2008 adjusted by HPV infection status.

Methods: We have identified 232 patients with OPSCCs in Western Norway. 186 of these tumors originated were from the tonsil or base of the tongue region. 96 patients were treated in the period 1992-1999 and 136 patients in the period 2000-2008. HPV status was obtained by PCR in 226 patients and these patients were included into the study. Five year disease-specific survival (DDS) and overall survival (OS) were recorded from all patients.

Results: 124 of 226 patients had HPV+ tumors. Among these 38 out of 92 OPSCCs were HPV positive in the first period and 86 out of 134 OPSCCs were HPV positive in the second period. All HPV+ patients but five had HPV-16 positive tumors. In the first period 16 patients were treated by primary surgery and 35 were treated by neck dissection whereas in the second period 69 were treated by primary surgery and 78 were treated by neck dissection. In the first period 16 were treated by neck dissection and primary tumor surgery whereas 62 received such surgery in the latter period. All surgically treated patients but two were postoperatively radiated. The rest of the patients but 9 were only RT treated. Five year DDS among all the HPV negative patients in the first period was 51% versus 55% in the second period and the corresponding OS 33% versus 31%. Five year DDS among all the HPV positive patients was 78% in the first period versus 77% in the second period and OS 71% in the first period versus 69% in the second period, respectively.

Conclusions: Five year disease free survival (DSS) and overall survival (OS) in OPSCC patients were for all practical terms similar between the two time periods when treatment results were adjusted by HPV infection status in the tumors. This indicates that primary surgical treatment followed by RT yields identical 5 year survival results as RT followed by surgery if RT treatment failure.
ADVANCES IN THE MANAGEMENT OF PHARYNGOESOPHAGEAL TUMOURS
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BACKGROUND

Pharyngoesophageal tumours which are defined as tumours involving simultaneously the hypopharynx and cervical oesophagus have classically been managed by total pharyngo-laryngo-oesophagectomy (PLO) and gastric tube pull-up for pharyngogastric anastomosis (PGA). However PLO and PGA is a major surgical undertaking associated with high complication and in-hospital mortality rates. As a result, many have looked towards less aggressive surgical approaches. In this study, we propose a new surgical approach which enables adequate tumour resection without having to remove the entire oesophagus. Furthermore, we aim to demonstrate that with comprehensive pre-operative work-up and vigilant post-operative surveillance, all synchronous and metachronous tumours can be detected early and accurately. Hence arguing against the need for total oesophagectomy in this group of patients.

METHODS

A retrospective review of all patients diagnosed with pharyngoesophageal tumours who underwent surgery between January 2003 and June 2013, in the Head and Neck Division of the Department of Surgery, The University of Hong Kong at Queen Mary Hospital, Hong Kong.

All patients underwent endoscopic examination, imaging studies and tissue diagnosis pre-operatively for tumour staging. Depending on tumour location and extent, patients underwent PLO or pharyngectomy and total laryngectomy and/or cervical oesophagectomy (PLCO). Manubrial resection was performed to enhance tumour exposure in patients with deep-seated tumours. All patients were followed up indefinitely to detect tumor recurrence. Indications and types of surgery, pathological outcomes, local recurrence rates and the incidence of synchronous and metachronous tumours were analyzed.

RESULTS

Forty-eight patients underwent surgery for pharyngoesophageal tumours and seven for synchronous tumours in the hypopharynx and thoracic oesophagus. PLO and pharyngectomy without total oesophagectomy was performed in twenty-six and twenty-nine consecutive patients respectively. Of those who underwent PLCO, one underwent manubrial resection. Circumferential pharyngeal defect reconstruction was by means of visceral or myocutaneous flaps.

All patients who failed to demonstrate synchronicity on pre-operative work-up was confirmed to be clear of synchronous tumour on clinical and pathological examination of the resected specimens. All seven patients who were diagnosed with synchronous tumours underwent PLO and PGA. Clinical and pathological examination of the PLO specimen confirmed the presence of synchronicity.

Positive resection margins were noted in the trachea (n=4) and pharynx (n=2) in the PLO group. One patient who underwent PLCO was misled by false negative results on frozen section and was subsequently confirmed with a positive tracheal resection margin. Mean follow-up was 25.4 (4-123) months. Local recurrence occurred at the parastomal area (n=3) and PGA (n=1) more than six months post operation. One patient who underwent circumferential pharyngectomy and total laryngectomy for post-cricoid tumour was noted to have positive resection margin over the right lateral pharyngeal wall.
on final pathological report. He was subsequently diagnosed with a lower oesophageal tumour fourteen months after operation. The overall incidence of synchronous and metachronous tumours was 12.6% and 2.0% respectively.

CONCLUSIONS

With comprehensive pre-operative work-up and vigilant surveillance post-operation, routine removal of the entire oesophagus in patients with pharyngoesophageal tumours is no longer justified.