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Review

The incidence and management of non-head and neck incidentalomas for the head and neck surgeon

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Introduction

A wide variety of imaging studies are employed for the staging or follow-up of head and neck cancer patients. It is not uncommon to encounter incidental findings outside of the head and neck region. Some of these "incidentalomas" (INs) represent distant metastatic disease, separate malignancies or non-malignant processes that can have significant clinical consequences if left untreated.

Advances in medical imaging technology have provided more sensitive, detailed and higher resolution images. Consequently, the frequency of INs has increased [1,2]. A considerable volume of our referrals emerges from colleagues that seek our expertise in managing unexpected imaging findings in the head and neck region. Similarly, head and neck surgeons can encounter incidental findings in regions outside their "comfort zone". Many times, we rely on the radiology report to suggest the next step in work-up. On other occasions, we initiate an immediate referral to another specialist without knowing if it is the most appropriate next step in management.

Non-head and neck INs (NhnINs) discovered in the context of a newly diagnosed head and neck cancer or during routine follow-up creates a cloud of uncertainty and apprehension for patients and their family [3]. There are also financial implications if patients are asked to attend to unnecessary additional medical appointments and radiation exposure from inappropriate imaging investigation [2]. We have noted significant heterogeneity in the management of NhnINs within our surgical group. We surmise that there may be even greater variation in management between different centres. We are aware that the management of NhnINs is beyond the scope of our specialty. However, as physicians ordering the studies and most of the times leading the care of an individual, we should have an appreciation of the suitable counseling, the need for further imaging, and indications for referral to a specialist when encountering the most common NhnINs.

The objective of this study is to quantify the frequency of NhnINs encountered by head and neck surgeons at a high volume tertiary care centre. In addition, with the tutelage of different specialists from our health centre, we provide a summary of the most relevant published guidelines of the NhnINs encountered in our head and neck surgery practice. While this manuscript doesn't intend to replace the referral/assessment of other specialists, it aims to provide the head and neck surgeon another tool in their armamentarium to interpret the significance of some of the NhnINs in order to adequately refer the patient to a specialist, order further studies, and effectively counsel their patients.

Material and methods

We retrospectively analyzed the follow-up or initial staging imaging reports and medical charts of all the patients with head and neck malignancies referred to the multidisciplinary tumor board of the London Health Science Centre (LHSC) from January 2015 to December 2016. The LHSC reviews all patients who are diagnosed with head and neck cancers in Southwestern Ontario, encompassing the counties of

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Middlesex, Elgin, Oxford, Perth and Huron (catchment area of 1.5 million patients).

Patient demographics including age and sex were recorded. NhnINs were defined as any finding mentioned in ultrasound, CT, MRI or PET scan reports. Possible neoplastic, inflammatory, infectious, vascular or metabolic abnormalities were considered. Reports describing unequivocal metastatic disease related to the primary head and neck malignancy (which was confirmed after reviewing the medical charts of that case) were excluded. Healed fractures and degenerative bone changes such as spinal osteoarthritis were not included in our analysis. We classified the NhnINs according to the involved organ. If more than one NhnIN was present in the same organ, consideration was given to the most clinically concerning entity (e.g. solid lesions > cystic lesions). In case there were multiple findings in the same location (e.g. cysts), the largest lesion was included for analysis. The number of recommendations, defined as any suggestions for further studies, specialist referral, or differential diagnosis provided in the radiology report were also recorded.

Results

A total of 779 newly diagnosed head and neck cancer patients were reviewed during the two-year period. The mean age was 66.7 years (range 17–93) and 68.7% were men. A total of 288 patients (37%) had at least one NhnIN. Table 1 depicts in detail the findings classified by organ and type of abnormality. A total of 358 NhnINs were recorded. In 219 patients, they were present in a single organ. Fifty-five patients had NhnINs in two different organs, 7 patients had three organs involved, and there were 2 cases with four different sites. A total of 314 follow-up recommendations were made within the radiology reports. In 58 cases (15 vascular, 12 renal, 9 hepatic, 7 pancreatic, 6 pulmonary, 4 adrenal and 5 thyroid gland findings), imaging reports made no further recommendations for the incidental findings they described.

Pulmonary incidentalomas

Of the total 779 patients, the imaging report strongly suggested a primary lung malignancy in three cases (0.38%). All three lesions were > 1 cm and two of them exhibited hypermetabolic activity on PET scans. The third patient was lost to follow-up. For the vast majority of lung findings (97%), a follow-up CT scan was employed to re-evaluate the radiographic findings. The remaining 3% were further evaluated with PET scan. No CT-guided or bronchoscopic biopsies were performed in our cohort.

Hepatic incidentalomas

There were 12 benign tumors reported (almost all hemangiomas) out of 83 hepatic INs. In 4 cases, radiographic findings were compatible with liver metastasis, defined by their heterogeneity, ill-margins, and enhancement. Ultrasound (US)-guided fine needle aspiration (FNA) confirmed the diagnosis of a non-head and neck primary malignancy in all four cases. There was one case of a hepatocarcinoma (confirmed by US-FNA) in a cirrhotic patient. The remainder of the hepatic INs were cysts and other benign findings.

Renal incidentalomas

From a total of 44 renal incidental findings, only 1 ended up being a renal cell carcinoma, measuring 3.3 cm with peripheral enhancement. The majority of the remaining renal INs were cysts.

Vascular incidentalomas

Of a total of 21 vascular INs, there were eleven aortic aneurysms with a median diameter of 4.69 cm (range 3–5.7 cm, incidence of 1.4%). Only 1 of these 11 required an endovascular stent placement. Four intracranial aneurysms were identified (0.5% incidence), which had a median diameter of 3.55 mm (range 2.5–5 mm). None of these required intervention after a neurosurgical assessment.

Table 1
Summary of non-head and neck incidentalomas.

Location	No. of findings (% of total of patients)	No. of recommendations
Lung	***116* (*15*)**	110
-Incidental solitary pulmonary nodules (ISPN)	96	
< 4 mm	52	
4–6 mm	18	
6–8 mm	10	
> 8 mm	16	
-Non-specific parenchymal opacities	5	
-Granulomas	5	
-Bronchial wall thickening/ Pleural plaques	4	
-Perihiliar nodes	3	
-Parenchymal scars	3	
Liver	***83* (*10.6*)**	74
-Cysts	51	
-Benign Tumor	12	
-Non-Head and neck Liver metastasis	4	
-Fatty liver changes/iron infiltration/dilated bile ducts	15	
-Hepatocarcinoma	1	
Renal	***44* (*5.6*)**	32
-Cysts	33	
-Low attenuation focal masses	7	
-Renal stones	3	
-Renal cell carcinoma	1	
Vascular	***21* (*2.7*)**	6
-Aneurysms	17	
Infrarrenal	9	
Ascending aorta	2	
-Venous thrombosis	4	
-Intracranial Aneurysm	4	
-Splenic Artery	1	
-Celiac Trunk	1	
Adrenal Gland	***17* (*2.2*)**	13
-Unilateral Adenomas	12	
-Hyperplasia	5	
Pancreatic	***9* (*1.2*)**	2
-Cysts	6	
-Parenchymal calcification	1	
-Air in the pancreatic duct	1	
-Solid lesion	1	
Splenic	***9* (*1.2*)**	5
-Cyst	7	
-Infarct	1	
-Granuloma	1	
Other location	***59* (*7.57*)**	29
-Thyroid nodules	34	

Adrenal incidentalomas

Seventeen adrenal INs were identified (2% incidence). A dedicated adrenal MRI was recommended in 3 cases to better delineate the anatomy, while the rest were clearly defined as adenomas with CT scans. Three patients underwent testing to rule out functioning adenomas.