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Sinonazal Bölge Lezyonların Klinikopatolojik Değerlendirilmesi: Tek Merkez Deneyim

Clinicopathological Evaluation Of Sinonasal Region Lesions: A Single Center Experience

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ÖZET

Klinikte sinonazal bölgenin bening ve malign lezyonları ile sıklıkla karşılaşmaktayız. Bu çalışmamızda Sağlık Bilimleri Üniversitesi (SBÜ) Ankara Eğitim ve Araştırma Hastanesi (EAH) Patoloji Bölümünde 2016 – 2019 tarihleri arasında sinonazal bölge lezyonu tanısı alan olguları retroprospektif olarak patolojik ve klinik özelliklerini değerlendirmeyi amaçladık.

Bu çalışmada, 2016 – 2019 tarihleri arasında, SBÜ Ankara EAH'i Patoloji Bölümünde raporlanmış benign ve malign sinonazal bölge lezyonları değerlendirilmiştir. Hastane bilgi sisteminden retroprospektif olarak sinonazal bölgenin bening ve malign tanı almış olguların hasta verilerine ulaşılmıştır. Hasta verilerinden yaş, cinsiyet, tanı, lokalizasyon ve klinik bilgilerini içeren datalar elde edilmiştir. Daha sonra bu datalardan data setler oluşturulmuştur. Bu data-setler istatistiksel olarak değerlendirmeye alınmıştır. İstatistikler sonucu elde edilen veriler literatür eşliğinde tartışılmıştır.

Hasta verilerinden elde edilen data setlerde sinonazal bölgede görülen bening lezyonların sayısının (%91), malign lezyonlara (%9) göre daha yüksek oranda olduğu gözlendi. Sinonazal kitlesi olan hastalar ağırlıklı olarak 41-50 yaş grubunda olup, erkek kadın oranı 2:1 olarak saptandı. Rinore ve burun tıkanıklığının en sık başvuru semptomu olduğu tespit edildi. Patoloji bölümüne gönderilen lezyonların klinisyen tarafından yapılan anatomik sınıflamasının %84.5'i nazal kavite, %3.5'i nazal septum, %1.6'sı nazal konka, %2.2'si nazal vestibül ve %8.2'sinin paranazal sinüs şeklinde olduğu görüldü. Bu olguların patolojik tanılarına göre bening karakter gösteren sinonazal polibin %82.6 sıklıkla, malignite ve nüks potansiyeli taşıyan inverted papillomun %8.5 sıklıkta olduğu görülmüştür.

Sinonazal bölge lezyonları sıklıkla benign olup, malignite potansiyeli göz ardı edilmemelidir. Bu bölgenin bening ve malign lezyonlarının klinik değerlendirmesinde benzer semptomlar ve bulgular gösterebileceği akılda tutulmalıdır. Bu nedenle sinonazal bölgede lezyon varlığında endoskopik ve patolojik değerlendirme önemlidir.

Anahtar kelimeler: Sinonazal lezyonlar, patoloji, klinik

ABSTRACT

Benign and malignant lesions of the sinonasal area are frequently seen in the clinic. The aim of this study was to evaluate the pathological and clinical features of patients diagnosed with sinonasal lesions in the Department of Pathology of the University of Health Sciences Ankara Training and Research Hospital between 2016 and 2019.

Evaluation was made of benign and malignant sinonasal lesions reported in the Department of Pathology of the University of Health Sciences Ankara Training and Research Hospital between 2016 and 2019. The data including age, gender, diagnosis, localization and clinical information of patients diagnosed with benign and malignant sinonasal lesions were obtained retrospectively from the hospital information system and patient files. The data sets created were then evaluated statistically and the results were discussed in the light of the relevant literature.

From the data sets obtained from the patient data, it was observed that the number of benign lesions in the sinonasal region (91%) was higher than malignant lesions (9%). Patients with sinonasal masses were predominantly in the 41-50 years age group, with a male to female ratio of 2:1. Rhinorrhea and nasal obstruction were determined to be the most common symptoms at

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presentation. The anatomic localization of the lesions sent to the pathology department was classified by the clinician, and reported as 84.5% nasal cavity, 3.5% nasal septum, 1.6% nasal concha, 2.2% nasal vestibule, and 8.2% paranasal sinus. According to the pathological diagnoses of these cases, sinonasal polyps with benign characteristics were found at the rate of 82.6%, and inverted papilloma with the potential for malignancy and recurrence at 8.5%.

Sinonasal lesions are often benign but malignant potential should not be ignored. It should be kept in mind that benign and malignant lesions of this region may show similar symptoms and indications in clinical evaluation. Therefore, endoscopic and pathological evaluation is important for lesions detected in the sinonasal region.

Keywords: Sinonasal lesions, pathology, clinic

Introduction

Anatomically, the sinonasal region includes the nasal cavity and paranasal sinuses (maxillary, ethmoid, frontal, sphenoid spaces). The sinonasal region is lined by respiratory type pseudostratified columnar epithelium and stratified squamous epithelium, and contains the submucosal seromucinous glands. Sinonasal region lesions can be seen in all age groups. Clinical symptoms of sinonasal lesions include nasal congestion, epistaxis, headache, facial swelling and postnasal drip (Balogh - Pantanowitz 2007: 403–430).

Polyps, cysts and tumours that develop secondary to inflammatory diseases are observed in the sinonasal region (Batsakis – Sneige 1992: 623-5). Malignancies of this region are much less common than inflammatory diseases. Malignant tumours originating from the nasal cavity and paranasal sinuses constitute 0.2-0.8% of all malignant neoplasms in the body and 3% of head and neck neoplasms. Tumours of the sinonasal region with malignant and malignant potential are frequently seen in the age range of 50-70 years and are more common in Caucasians and males (Slootweg, vd. 2017: 11-61). Sinonasal tumours are anatomically located in the maxillary sinus in 60% of cases, 20-30% in the nasal cavity, 10-15% in the ethmoid sinus, and 1% in the frontal and sphenoid sinuses (Robin, vd. 1979:431-56).

Patients with sinonasal lesions may present with upper respiratory tract obstruction and related obstructive sleep apnea (OSA). Therefore, treatment of sinonasal pathologies that cause upper respiratory tract obstruction is very valuable (Kabir, vd. 2013:57-65; Dell'Era, vd. 2020:1-4).

The aim of this study was to retrospectively review the data of patients who were evaluated for lesions in the sinonasal region and diagnosed histopathologically between 2016 and 2019 in our hospital's otolaryngology clinic. The histopathological diagnoses were examined according to location and gender, and interpreted in the light of the literature.

Materials and Methods

In accordance with Research and Publication Ethics, Ethics Committee Approval was received from Ankara Training and Research Hospital on 29.07.2021 with the decision number E-21-704.

The archives of the Pathology Department were scanned for the files of patients who underwent surgery for benign and malignant lesions in the sinonasal region by the Otorhinolaryngology Clinic between 2016 and 2019 in Ankara Training and Research Hospital. The medical records of 367 patients were analyzed retrospectively. Patients were included in the study if the medical records provided full data of age, gender, lesion localization, clinical information and histopathological information. Data sets were created from this information, which were then evaluated statistically using IBM SPSS vn. 22 statistics software. Descriptive statistical methods (mean, standard deviation, frequency and percentage distributions) were used to evaluate the data.

Results

Evaluation was made of 367 patients, comprising 246 males and 121 females with a mean age of 43 years (range, 1-89 years). The complaints of the patients were most commonly nasal obstruction and snoring with 333 (90.74%) cases, followed by headache and facial swelling in 19 (5.17%) cases, epistaxis in 8 (2.18%) cases, nasal discharge in 5 (1.37%) cases, and external nasal mass in 2 (0.54%) cases.

The anatomic localisation was determined as 297 (81.0%) lesions in the nasal cavity (including cases where the anatomic structure of the nasal passage was in the patient records and origin was not specified in the physical examination notes), 6 (1.6%) in the nasal concha, and13 (3.5%) in the paranasal sinus. Development of the lesions was found to be 8 (2.2%) from the nasal septum, and 43 (11.7%) from the paranasal sinus (7 frontal, 26 maxillary, 8 ethmoids, 2 sphenoids).

When all 367 cases were classified according to localization, 225 (61.4%) lesions developed in a single localization from the nasal cavity and paranasal sinus, 135 (36.7%) developed bilaterally from the right and left nasal cavity, and 7 (1.9%) developed in more than one localization.

Multiple clinical presentations were recorded in the files of the patients who had undergone surgery due to sinonasal lesions and were diagnosed from tissue examination. In 303 patients, the preliminary clinical diagnosis was sinonasal polyps as a result of pathology examination, 282 (93.1%) septum deviation and sinonasal anatomical disorders, 273 (90%) seasonal allergic rhinitis, 257 (84.8%) nasal polyps,

186 (61.4%) acute sinusitis, 29 (9.5%) acute tonsillitis, 9 (3%) chronic sinusitis, and 2 asthma.

When the distribution of the clinical preliminary diagnoses of 31 cases with inverted papilloma was examined, there were observed to be 30 (97%) cases of septum deviation and sinonasal anatomic disorders, 21 (68%) nasal polyps, 20 (64.5%) seasonal allergic rhinitis, 13 (42%) acute sinusitis and 2 (6%) acute tonsillitis.

Epistaxis, septum deviation and anatomical abnormality were observed in all 8 patients diagnosed with pyogenic granuloma tissue. It was observed that seasonal allergic rhinitis was pre-diagnosed in two cases and acute sinusitis in one case.

When the clinical preliminary diagnoses of 16 patients with mucocele/mucus retention cyst tissue were examined, 13 had septum deviation and sinonasal anatomic disorder, 11 had seasonal allergic rhinitis, 10 had nasal polyps, 9 had acute sinusitis, and 4 had epistaxis.

In 2 cases diagnosed with lymphangioma tissue, there was also determined to be septum deviation, sinonasal anatomic abnormality and seasonal allergic rhinitis.

Nasal polyp (Figure 1) was the most common lesion, followed by mucocele/retention mucus cyst (Figure 2), rhinolith, sclerotic fibroma, pyogenic granuloma, lymphangioma, mucinous cystadenoma, glial heterotopia, meningioma, inverted papilloma (Figure 3), olfactory neuroblastoma, and alveolar rhabdomyosarcoma (Figure 4). Localizations of the lesions according to the histopathological diagnoses are shown in Table 1. When the nasal polyp cases were examined in terms of tissue eosinophilia, it was observed in 179 (59%) cases that eosinophils constituted more than 11% of the inflammatory cells in polyp stroma.

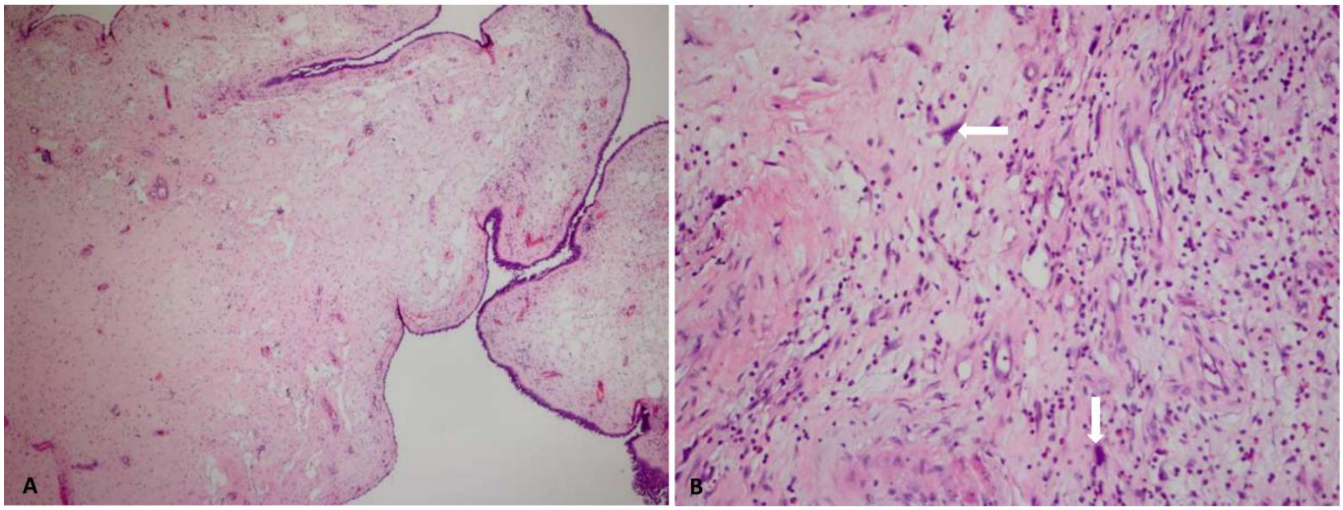

Figure 1. Sinonasal Polyp A. Inflammatory cells observed in the loose edematous myxoid stroma. (Hematoxylin Eosin, H&E, x40) B. Reactive atypia (arrow) in stromal fibroblasts (H&E, x100)

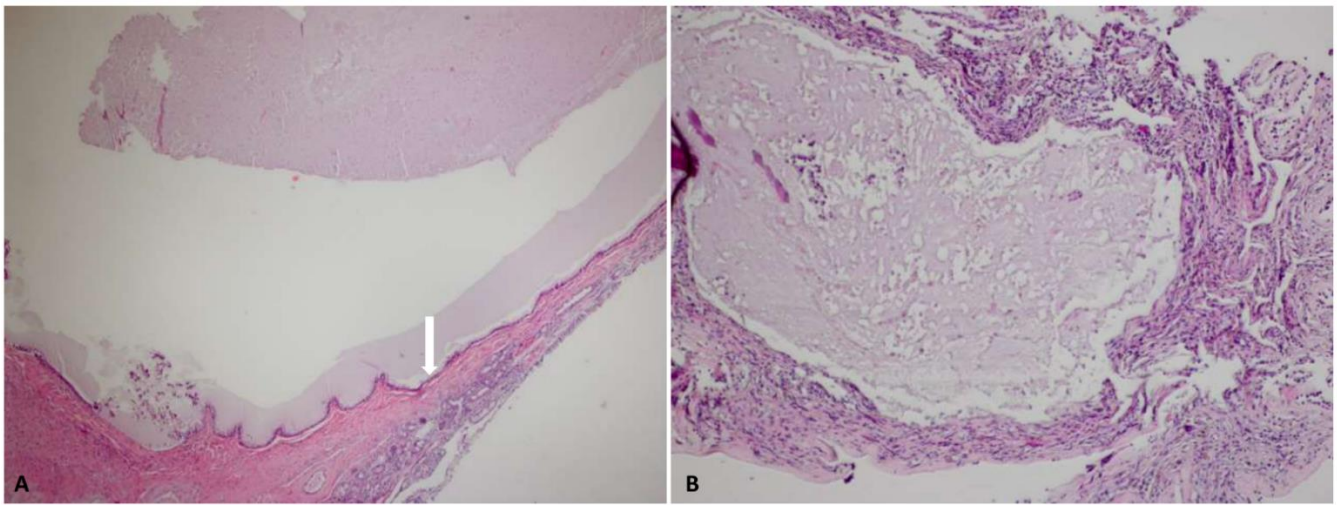

Figure 2. A. Retention cyst with lining epithelium (arrow) under the mucosal epithelium. (H&E, x40) B. Sinus mucocele with edema fluid and not lining epithelium (H&E, x40)

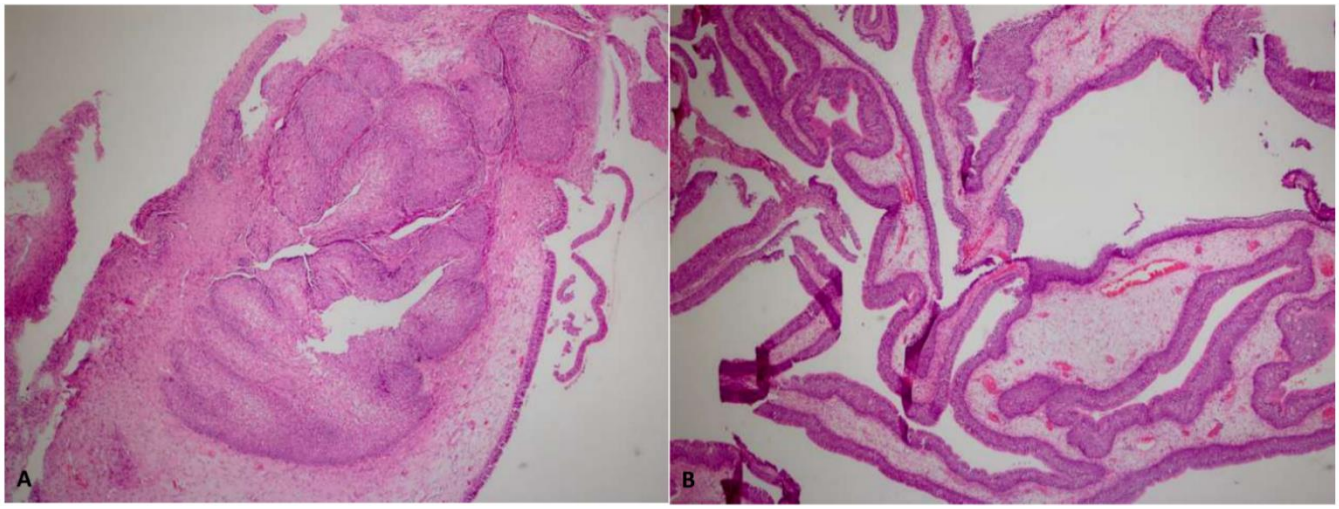

Figure 3. Schneiderian Papilloma A. Sinonasal papilloma with an endophytic (inverted) growth pattern (H&E, x40) B.Sinonasal papilloma with an exophytic (everted) growth pattern (H&E, x40)

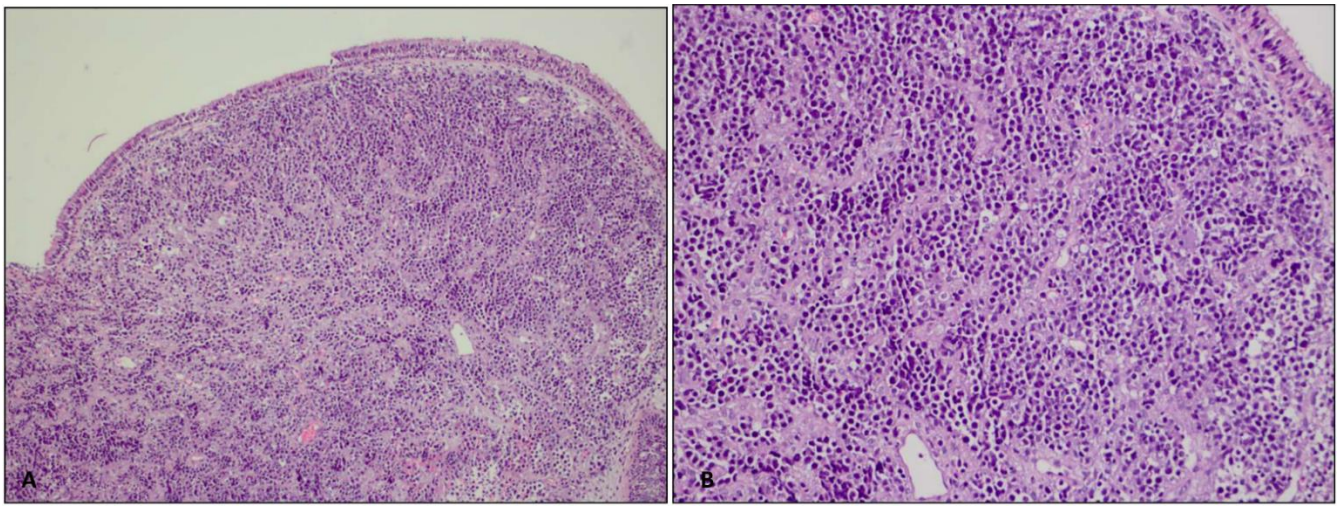

Figure 4. A. Alveolar Rhabdomyosarcoma: the tumour consists of small round-oval cells that show nests with thin fibrous bands under the respiratory tract epithelium. (H&E, x40) B. Uncohesive tumour cells observed in the wells. (H&E, x200)

Table 1. Localization of lesions according to histopathological diagnosis

Histopathological diagnosis	Localization	Number of cases
Nasal Polyp (n=303)	Nasal Cavity	266
	Paranasal Sinus	23
	Nasal Septum	8
	Nasal Concha	6
Retention Mucus Cyst (n= 13)	Paranasal Sinus	13
Mucocele (n= 3)	Paranasal Sinus	3
Rhinolith (n=1)	Nasal Cavity	1
Sclerotic Fibroma (n=1)	Nasal Vestibule	1
Pyogenic Granuloma (n=8)	Nasal Vestibule	3
	Nasal Cavity	3
	Nasal Septum	2
Lymphangioma (n=2)	Nasal Cavity	2
Mucinous Cystadenoma (n= 1)	Nasal Septum	1
Glial Heterotopia (n=1)	Nasal Cavity	1
Meningioma (n=1)	Nasal Vestibule	1
Inverted Papilloma (n=31)	Nasal Cavity	22
	Paranasal Sinus	4
	Nasal Vestibule	3
	Nasal Septum	2
Olfactory Neuroblastoma (n=1)	Nasal Cavity	1
Alveolar Rhabdomyosarcoma (n=1)	Nasal Cavity	1

Discussion

Nasal polyps are inflammatory growths of sinonasal tissue estimated to occur in approximately 1-4% of the adult population (Fokkens, vd. 2012:1-298). In most studies, nasal polyps have been found to be more common in males, and incidence has been reported to increase with age (Dingsör, vd. 1985:49-58; Bateman, vd. 2003:1-9).

In this study of 367 cases, nasal polyposis was observed in the histopathological examination of 82.57% of the surgical specimens. In the cases with nasal polyps, the mean age was found to be 42 years for females and 45 for males and the incidence was 2-fold greater in males than females. Nasal congestion and snoring are the most common symptoms in adults with nasal polyps due to obstruction of the upper respiratory tract, and therefore, sleep disturbances and sleep apnea are common in these patients (Kabir, vd. 2013:57-65). It is known that men experience respiratory sleep disorders 2.0-3.7 times more than women and sex hormones affect the symptomatology of chronic rhinosinusitis (Migueis, vd. 2019:43-47). In a previous study, it was reported that 70% of OSA patients experienced nasal respiratory obstruction, and one or more sinonasal pathologies were found in 80% of the patients (Dell'Era, vd. 2020:1-4). Nasal polyposis and respiratory sleep disorder have been found to be correlated with gender and age.

Nasal and paranasal polyps develop as a result of exophytic growth of the sinonasal tissue associated with inflammation, allergy or mucoviscidosis. Most sinonasal lesions are inflammatory nasal polyps and often develop on the background of chronic rhinosinusitis. Nasal polyps typically originate bilaterally and anatomically, often from the middle meatus and ethmoid region, extending into the nasal airway (Dingsör, vd. 1985:49-58).

Clinically, nasal polyps are often associated with asthma and allergies. Eosinophil leukocytes have been shown to be numerous in allergic polyps in the pathological examination. In addition, there are mucoid secretions and cystic enlargements in the increased number of glands and lumen. Although tissue eosinophilia is the hallmark of nasal polyposis, there is no universally accepted definition for the eosinophilic nasal polyp. The classification and reporting of eosinophilic nasal polyps is under discussion among researchers at present. It has been reported that eosinophils constitute more than 60% of the inflammatory cell population in most nasal polyps (Pawankar, 2003:1-6).

It has been reported that eosinophils account for an average of 18.7% of all inflammatory cells, and nasal polyps with at least 1 or more eosinophil infiltration account for 90.7% of all nasal polyps. Recently, the concept of Eosinophilic Allergic Polyp (EAP) has been suggested in the literature. When applying the concept of EAP, a tissue eosinophil count of 11% has been found to be important and clinically most beneficial. In a previous study using this criterion, the EAP rate among nasal polyps was found to be 62.7%. In the current study, the EAP rate was determined as 59.0% when 11% tissue eosinophil count was accepted as the criterion in nasal polyps (Jeong, vd. 2011:241-6).

Chronic rhinosinusitis with nasal polyps (CRS with NP) is an important clinical condition diagnosed from the presence of both subjective and objective evidence of chronic sinonasal inflammation. It has been stated in the literature that approximately 25-30% of all CRS patients

have CRS with nasal polyps. In a large retrospective study, pre-illness prevalence such as acute rhinosinusitis, allergic rhinitis, chronic rhinitis, asthma, gastroesophageal reflux disease and sleep apnea was found to be significantly higher in those diagnosed with CRS with NP (Stevens, vd. 2016:565-72).

In the differential diagnosis of nasal polyps, benign lesions should be considered such as Schneiderian papilloma, angiofibroma and encephalocele, as well as malignant lesions such as squamous cell carcinoma, esthetic neuroblastoma, nasal lymphoma and rhabdomyosarcoma (London – Reh 2016:1-12).

Hyperchromatic large nucleus, which is thought to be reactive in stromal cells, and atypical changes with prominent cytoplasm can be seen in polyp stroma, which is especially seen in young individuals. This appearance may be confused with sarcoma and stromal changes seen under the effect of radiotherapy. Therefore, in the pathological differential diagnosis of nasal polyps, sarcoma and stromal changes seen under the effect of radiotherapy should be considered (Figure 1B). In addition, the presence of myxoid stroma in cases with frequent recurrence should be considered in terms of a neoplastic lesion (Günhan, 2015:347).

Although Nasal Polyp is a benign phenomenon, it is important to differentiate these from sarcoma at the time of diagnosis and to evaluate cases in terms of the treatment of sleep apnea due to upper respiratory tract obstruction. Neoplastic diseases should be considered in the foreground in unilateral sinonasal polypoid masses with onset at an advanced age or in atypical locations (Tritt, vd. 2008:230-2).

According to the pathogenesis of paranasal sinus cysts, retention cyst can be classified in three groups as mucocele and antral pseudocyst, of which retention cysts are the most common. A retention cyst differs from mucocele in that it is surrounded by pseudostratified squamous or cuboidal epithelium. The presence of this epithelium reported by the pathologist is valuable in distinguishing it from mucocele in the diagnosis of paranasal sinus retention cysts. Mucoceles are less common and are seen most frequently in the frontal and ethmoid sinuses after the 4th decade of life, with no significant gender difference. The most common causes in the etiology are previous nasal surgery, chronic sinusitis, nasal polyposis and nasal trauma. Although mucoceles are benign, they have clinical features that suggest malignancy, such as bone destruction in the surrounding tissue and expansion into neighbouring tissues. Mucoceles should be considered in cases with bone destruction in the surrounding tissue during clinical and radiological diagnostic procedures (Hulett – Stankiewicz 2007:1229-54; Serrano, vd. 2004:133-40). In the current study, there were 16 cases with paranasal sinus cysts with an average age of 39 years, and more frequently in males than females. Association of the nasal polyp was observed in 11 of the 16 paranasal sinus cases, of which 3 were mucoceles, and none had clinical bone destruction. Pyogenic granuloma is a commonly acquired type of capillary hemangioma of unknown etiology, which is associated with pregnancy, oral contraceptives and trauma. Although it is usually seen around the nails, fingers, palms and scalp, it is also a common lesion in the mucous membranes. The nasal cavity is an area where pyogenic granuloma is rarely seen, with reports in the literature that <10% of pyogenic granulomas are located in the nasal cavity (Mills, vd. 2000:243-7; Karagama, vd. 2002:71-5).

Epistaxis is the most common symptom of lesions located in the nasal cavity, which are frequently located in the anterior region of the nasal septum (Little's area) and less frequently in the inferior concha (Kurtaran, vd. 2006:442-4). In the current study, a total of 8 pyogenic granuloma cases had epistaxis complaints, with 3 found to be located in the nasal cavity, 3 in the nasal vestibule and 2 in the nasal septum. Pyogenic granuloma should be kept in mind by the clinician when patients present with epistaxis. A detailed anamnesis should be taken and the pyogenic granuloma and the anatomic regions where it is located should be examined in detail in the treatment protocols.

Rhinolith is a mineralized mass formed by the accumulation of salts around a nidus in the nasal cavity. They are rare and cause nasal obstruction (Aksakal, 2019:542-547). In a case in the current study, the rhinolith was located in the nasal cavity, the patient presented with complaints of nasal obstruction, and was diagnosed clinically and pathologically.

Lymphangiomas are rare lesions and are usually a congenital malformation of the lymphatic system localized in the head and neck (Neville, vd. 2002:475-7). In the current study, lymphangioma was observed in 2 cases, both of which were localized in the right and left nasal cavity.

Mucinous cystadenoma is a rare lesion, which is a painless and asymptomatic salivary gland tumour, constituting approximately 0.8-6.3% of all benign minor salivary gland tumours. Common areas are the palate, buccal mucosa, lips and tonsil area. In the current study, it was observed in a single case in the nasal cavity (Shafer, vd. 2006:309-56; Choi, vd. 2020:329-333), which is an uncommon anatomic location for mucinous cystadenoma in the literature. Unlike previous reports in literature, gastric heterotopia and meningeal tissue residues were found to be associated with mucinous cystadenoma in this single nasal cavity.

Glial heterotopia is a rare congenital, (usually midline) developmental, non-neoplastic displacement of neuroglial tissue in extracranial regions not connected to the cranial cavity. It is often referred to as nasal glial heterotopia because it commonly occurs in or around the nose. The incidence of congenital midline nasal masses is rare, and only 264 cases have been reported in the world literature (Julie, vd. 2019:100107). In the current study, glial heterotopia was detected in a 3-month-old infant with a diagnosis of encephalocele.

Meningiomas are considered to be one of the most common tumours of the central nervous system, constituting 15-20% of all intracranial tumours. Occasionally, they can

be found extracranially, especially in the head and neck. Nasal cavity and paranasal sinus involvement have been reported to be 15% - 25%, especially in olfactory groove meningiomas. In cases where the intracranial mass is thought to be completely excised, recurrence rates varying between 10 and 32% have been reported in the first 10 years (Liu, vd. 2011:E3). Despite the benign appearance of meningiomas, it should be known that they may exhibit biologically aggressive behaviour and recur. Intracranial meningioma recurrence should be ruled out before classifying it as primary or ectopic (Balcı, vd. 2014:24-9). The current study patient who was diagnosed with meningioma localized in the nasal vestibule had undergone intracranial meningioma surgery 10 years ago, and the nasal meningioma was evaluated as recurrence.

Schnederian papilloma constitutes 0.5-4% of sinonasal tumors. Although it is benign in character, originating from the Schneiderian epithelium lining the nasal cavity and paranasal sinuses, it is important because of local invasion, frequent recurrence and malignant transformation. Morphologically it is classified as inverted, exophytic or oncocytic papilloma. Approximately 5-10% of cases become malignant, and squamous cell carcinoma often develops (Hunt, vd. 2017:28-31;Nudell, vd. 2014:269-286). Inverted papilloma is diagnosed especially over the age of 55 years, and the male / female ratio has been found to be 3-4 / 1 (Govindaraj – Wang 2014:47-51). Schneiderian papilloma was diagnosed in 31 of the current study cases, of which 21 were reported as inverted papilloma, 9 as exophytic papilloma, and 1 as oncocytic papilloma. These 31 cases comprised 24 males and 7 females, giving a male / female ratio of 3: 1, and the average age was 45 years for females and 54 years for males.

Olfactory neuroblastoma (esthesioneuroblastoma) is a rare tumour that constitutes 3-6% of intranasal masses originating from the olfactory neuroepithelium in the upper part of the nasal cavity. These cells are normally found in the upper part of the nasal cavity, including the superior nasal concha, nasal roof and cribriform plate, skull base and orbit. Although it can be seen at any age between 22-94 years, the incidence shows a bimodal distribution, with peaks in the 2nd and 6th decades of life. Patients frequently present with unilateral nasal obstruction and epistaxis, and rarely with rhinorrhea and anosmia (Fiani, vd. 2019:194-211). In the current study, in accordance with the literature, a 28-year-old female patient had neuroblastoma located in the nasal cavity and presented with the complaint of nasal obstruction.

Alveolar rhabdomyosarcoma is a high-grade malignant round cell neoplasia with skeletal muscle differentiation. Alveolar rhabdomyosarcoma is rare in the nasal cavity and paranasal sinuses, and although most cases consist of children, orbitally spread nasal and paranasal sinus alveolar rhabdomyosarcoma has been reported in the adult age group (Torres- Peña, vd. 2015:e414;Barthère, vd. 2020:870-875). The current study case of a 28-year-old young adult with orbital spread is compatible with the literature.

Sclerotic fibroma is typically localized slightly raised nodules smaller than 1 cm in the nasal septum or vestibule. These are always asymptomatic, and consist of mature, hypocellular fibrous tissue that does not microscopically invade the surrounding tissue (Mills, 2017:993). In the current study, only one case was diagnosed with this rare tumour, which was 5 mm in diameter and located in the vestibule.

Conclusion

Although sinonasal lesions are generally benign in nature, they can cause snoring, epistaxis, nasal congestion, headache, facial swelling and postnasal drip, thereby diminishing quality of life of patients. They are also important because they are associated with allergic diseases, cause obstructive sleep apnea, and occasionally have malignant potential. Due to the complex anatomic structure of the sinonasal region and the diversity of these lesions, diseases can be difficult to diagnose and treat. Clinical, radiological and histopathological differential diagnoses should be considered in the treatment of diseases of this region.

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