CANCER OF THE NASAL CAVITY AND PARANASAL SINUSES – OUR EXPERIENCE

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ABSTRACT

Malignant rhinosinusal tumors (MRST) are less than 1% of malignant tumors of the body and 3% of head and neck cancers. We present a retrospective study of 326 cases of MRST. The **aim** of this paper is to present our experience in the management of malignant rhinosinusal tumors. **Material and method** The clinical diagnosis was confirmed by pathological examination of the tumors of the patients included in the study. The treatment protocol included surgery, radio and / or chemotherapy. The patients were followed up for a period of minimum five years. **Results and Discussion** Pathological examination shows that the carcinomas were encountered in the majority of cases (73,3%) being more frequently diagnosed than lymphomas (18,7%) , sarcomas (58%) and melanomas (1,8%). The majority of carcinoma cases were diagnosed in advanced stages (III and IV) - (57,5%). Methastasis in lymph nodes were present in 20% of the cases. The 5 years survival rate was low but in accordance with those presented in the medical literature. **Conclusion** MRST have recur locally quite frequently; lymph nodes metastasis were present but without any clinical manifestation in the majority of cases. In terms of histology, squamous carcinomas were found most frequently (70%). The prognosis is influenced by late diagnosis. Five years survival in advanced tumors is under 16 %.

Keywords: paranasal sinuses, malignant rhinosinusal tumors, lymph nodes metastasis

INTRODUCTION

Malignant rhinosinusal tumours MRST represent less than 1% of malignant body tumours and about 3% of the head and neck cancers [1,2,3]. Usually patients are diagnosed in advanced stages of the disease. Complex anatomy and surrounding structures make surgery difficult [4,5,6].

The **aim** of this paper is to present our experience in the management of malignant rhinosinusal tumours.

MATERIAL AND METHODS

The study was based on 326 patients with clinical and pathologic diagnosis of MRST. Patients were supervised for a minimum of five years.

The patients who had an inconclusive pathological examination for MRST were excluded from this study.

The medical records of the patients were reviewed. Histological type, stage, the origin of the tumour and local extension of the malignancy, lymph nodes involvement, evolution of the disease were analysed.

RESULTS

Pathological examination of rhinosinusal

tumours in our series revealed four major types of cancer: carcinomas, lymphomas, melanomas and sarcomas. Carcinomas were found in 240 patients (73.3%). Among the most common was squamous carcinoma (164 cases, 50%) of these, 130 cases were poorly differentiated carcinomas (42%) and 34 cases were well differentiated (11%). Undifferentiated carcinoma was diagnosed in 45 patients (14%).

Adenoid cystic carcinoma and adenocarcinoma were found in 18 (5%) and 13 (4%) cases respectively.

Carcinoma was located in the maxillary sinus in 128 cases (53%), followed by the ethmoid - 83 cases (34%). Extension to adjacent structures was met at 32 patients (52%).

Nonhodgkin lymphomas were met in 50 patients (16%). They were represented by high grade lymphoma in 21 cases (diffuse large B-cell lymphoma, nasal-type NK/T-cell lymphoma and angioimmunoblastic T-cell lymphoma). In 29 cases low grade lymphomas were identified - (lymphoplasmacytic lymphoma, small lymphocytic lymphoma and follicular lymphoma). The remaining cases were represented by extramedullary plasmacytomas. Nineteen (5,8%) patients were diagnosed with sarcoma. The most common histological type was represented by fibrosarcoma 15 cases (5%).

Malignant melanoma was diagnosed in 6 cases (1,8%), all located in the ethmoid.

More than 50% of the tumours were diagnosed in the advanced stages III and IV (Table 1).

Table 1. Staging of sinusal carcinomas

	NO	N1	N2	TOTAL
T1	24			24
T2	73	5		78
T3	58	16	3	77
T4	41	16	4	61

Regarding the origin of rhinosinusal tumorus, the maxillary sinus was prevalent representing 36% of cases, the ethmoid was primary affected in 34 % of cases, the nasal cavities in 19% of cases and in 1% of cases we found other locations. In 10% of the patients the origin of the primary tumour could not be specified the volume of the tumour being too large and the extension into surrounding areas too ample.

Extension to the pterygopalatine fossa was found in 55 cases (17%), to the orbit in 51 cases (16%), to the brain in 9 patients - all with ethmoid tumours. Extension to posterior ethmoid and sphenoid sinus was found in 11 patients (3,4%). In 4 cases the optic nerve was affected causing blindness. Extension to the nasopharynx and skull base occurred in 3 patients. In 5 patients with cancer of maxillary sinus and 3 patients with ethmoid cancer we observed extension of the tumour to the soft tissue of the cheek. In 31 patients the tumour showed multiple extensions (orbit, posterior ethmoid and sphenoid, zygomatic fossa and nasopharynx, etc.).

Lymph node metastases were diagnosed by ultrasound in 44 cases, just seven patients have had lymph node metastases detectable also on clinical examination.

The distant metastasis was located in the lung in 9 cases, in the bone - 5 cases, in the liver - 5 cases and brain metastasis in one case. The majority have occurred in the first year -14 cases, followed by a "quiet" period of two years. In the third year the metastasis rate increased again, represented, this time, by the pulmonary localization.

The treatment was complex, consisting of chemoradiation and surgery.

Recurrency has occurred in 197 patients (60%). Among histological types, differentiated squamous carcinoma had a local recurrence in 95 cases out of a total of 130 cases (73%), in 15 cases out of 18 (83%) for adenoid cystic carcinoma and in 5 cases of

6 for malignant melanoma.

The 5-year survival rate for the 240 carcinomas was 41%, for the 61 lymphomas between 35% and 19%, for the 19 sarcomas and 6 melanomas no patient had 5 years survival.

For carcinomas, the 5 years survival rate was 65% in stage I, 52 % in stage II, 16% in stage III and stage IV, 6 %.

We have obtained data regarding the causes of death for 184 patients. Among these, in 86 patients mortality was caused by local invasion (47%), in 31 patients (17%) the cause was cachexia, in 26 patients (14%) - distant metastases, 21 patients (11%) - different diseases, 15 patients (8%) - infections, and in 5 patients (2%) by other reasons.

DISCUSSION

Out of all cases, 240 patients (73,3%) were diagnosed with carcinomas, meaning ¾ of all rhinosinusal cancers, a fact which was also noticed by Strohmann B [7]. In most carcinoma cases, the origin of malignancy was the maxillary sinus.

The literature acknowledges that lymph node involvement in rhinosinusal carcinoma is rare. The results of our study show that, in the most cases, lymphatic dissemination is not clinically manifested. Twenty two of the patients with lymph node metastases were diagnosed by ultrasound, all of them being diagnosed in an advanced stage (T3, T4) of the disease. Carcinomas have a much higher metastasis rate in the cervical lymph nodes (61 cases - 18,7%) than any other histologic type. The origin of these tumours was, in the majority of cases (50 patients), in the maxillary sinus followed by the ethmoid, as was also observed by other authors [8]. The same data was also reported by Spiro [9], unlike Wilder and Robbins [10,11] who observed a higher rate of tumours originated in the maxillary sinus.

Sarcomas are rare tumours of the head and neck, representing less than 1% of tumours in our region [12]. Prognosis is dependent on histologic type, tumour size and localization. The most common histological type was represented by fibrosarcoma: 15 cases (5%) - of these, only 7 patients passed the 5 years survival rate.

Malignant melanoma was diagnosed in 6 cases (1,8%). Krespi [13] reports similar findings, much lower than those provided by Barnes [14] that observed a percentage of 10-15%.

Discussing the data provided by pathological examination, in our cases nonepithelial tumours were more frequent (27%) compared with those found by other authors [15,16] which communicate a lower percentage of 10-15% for nonepithelial tumours.

The presence of lymph nodes metastases was found in 29 patients.

In general, these lymph nodes have caused complications with evolving local symptoms faded amid aggressive tumour region of origin.

Extension of rhinosinusal tumours is very important conditioning the treatment and finally the outcome.

Extension to infratemporal fossa was met in 55 cases (17%), which was caused by the destruction of the posterior wall of the maxillary sinus. The symptoms consist in pain in the area innervated by the superior maxillary nerve secondary to the pterygoid muscle infiltration and sometimes eyelid edema by pterygoid venous plexus compression. From infratemporal fossa the tumour may invade the orbit via preformed pathways, via neurovascular structures, or by direct extension through bone. Orbital invasion (bone erosion/invasion) occurs in 60% to 80% of maxillary sinus malignancies [17]. Extension to the orbit was encountered in 51 cases (16%) and was mainly produced

by the tumours originating in the maxillary sinus. Initially, the tumour has produced bone erosion and has invaded the periorbital fat and posterior pole of the eye followed by oculomotor muscle paralysis and blindness. Progression to the brains structures worsens the prognosis.

Extension to the cribriform plate and to the brain has occurred in 9 cases (2,8%) and was encountered particularly in the tumours of the ethmoid. Invasion of the brain contraindicate surgery.

Extension to posterior ethmoid and sphenoid sinus was found in 11 patients (3,4%). In 4 cases the optic nerve was affected causing blindness.

Extension to the soft tissues of the cheek was observed in 5 patients with maxillary sinus cancer and in 3 patients with ethmoidal cancer - with poor prognosis.

When referring to the stage of the tumour, the patients in our study have a 5-year survival rate of 65 % in stage I, 52 % in stage II, 16% in stage III and 6% in stage IV.

If we compare the survival rate reported by other authors, we have to mention that Sakata [18] reported 24% survival rate at 5 years for patients receiving only radiotherapy, and after the introduction of trimodal therapy (surgery, radiation, chemotherapy) they report a much higher survival rate of 50%.

Logue [19] had a study of 152 subjects and reported a percentage of 47% for 5-year survival, Strohman [7] on 235 cases - a percentage of 30% cases survival at five years, Jiang [20] in 73 patients communicate 51% survival. The survival rate is also influenced by the stage of the disease at the time of the diagnosis of the patient.

Histopathology gives us important information for the prognosis assessment. Thus, we consider interesting to compare the annual rate of survival after the histologic type of the tumour. For 240 carcinomas the 5-year survival was 41%, for the 61 lymphomas of 35% to 19%, for the 19 sarcomas and melanomas of the patients none survived more than 5 years.

Recurrency occurred in 197 cases (60%), the survival rate for these patients was lower than the overall survival rate.

Among histological types the local recurrency was higher for less differentiated squamous cell carcinoma - 95 cases out of a total of 130 (73%), for adenoid cystic carcinoma 15 cases out of 18 (83%) and for the malignant melanoma 5 cases out of 6.

CONCLUSIONS

MRST remain a therapeutic challenge due to the advanced stage at the time of the diagnosis and due to their extension in the neighbouring structures.

From the histological point of view we emphasize the wide variety of the histological types, carcinomas being predominant (73% - in our statistics), followed by lymphoid system tumours (20%) and sarcomas (6%).

The origin of the tumours was mainly the maxillary sinus in 54% of cases, the ethmoid in 35% and nasal cavities in 11%. The extension toward the pterygopalatine fossa, orbit, brain or soft tissue of the cheek and also the local recurrency have a major influence on the prognosis.

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