CLINICAL AND STATISTICAL ANALYSIS OF COMBINED INJURIES OF THE NOSE AND PARANASAL SINUSES

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Abstract. This study presents a clinical and statistical analysis of 140 patients with combined injuries of the nose and paranasal sinuses treated at a multidisciplinary clinic. The study evaluates demographic characteristics, causes of injury, types of trauma, diagnostic methods, and treatment outcomes. The results indicate that such injuries are more common among males of working age. Domestic trauma and road traffic accidents were identified as the leading causes. The findings highlight the importance of timely diagnosis and appropriate surgical management in reducing complications.

Keywords: nasal trauma, paranasal sinuses, combined injuries, statistical analysis, ENT.

Introduction. Injuries to the nose and paranasal sinuses are among the most common conditions encountered in otorhinolaryngology practice. These injuries often result not only in cosmetic deformities but also in functional impairments such as breathing difficulties and chronic sinusitis.

Combined injuries involving both the nasal structures and paranasal sinuses are particularly complex due to their anatomical proximity and increased risk of complications. Therefore, a comprehensive clinical and statistical evaluation of such cases is essential for improving diagnostic and therapeutic strategies. The aim of this study was to analyze the clinical and statistical characteristics of patients with combined nasal and paranasal sinus injuries.

Materials and Methods. This retrospective clinical study was conducted at the multidisciplinary clinic of TDTU and included 140 patients diagnosed with combined injuries of the nose and paranasal sinuses. The study population consisted of patients aged between 18 and 65 years who received inpatient or outpatient treatment during the study period (the specific years should be indicated by the author).Inclusion criteria comprised patients with clinically and radiologically confirmed combined trauma involving both nasal structures and at least one of the paranasal sinuses. Patients with isolated nasal injuries or incomplete medical records were excluded from the study.

All patients underwent a comprehensive clinical examination, including anterior rhinoscopy, palpation of nasal b ones, and assessment of nasal breathing function. Radiological evaluation was performed in all cases using standard X-ray imaging, while computed tomography (CT) scans were carried out in 78% of patients,

particularly in cases of suspected complex fractures or involvement of multiple sinus structures.

The collected data included demographic characteristics (age and gender), etiology of trauma, type and localization of injuries, diagnostic methods used, treatment modalities, and the presence of complications. Causes of injury were categorized into domestic, road traffic accidents, sports-related, and occupational injuries.

Treatment approaches were divided into conservative and surgical methods. Conservative management included reposition, immobilization, anti-inflammatory therapy, and symptomatic treatment. Surgical interventions were performed in cases of displaced fractures, severe deformities, or sinus involvement requiring operative correction.

Statistical analysis was performed using Microsoft Excel and SPSS software packages. Descriptive statistical methods were applied, and the results were expressed as absolute numbers and percentages.

Results

A total of 140 patients with combined injuries of the nose and paranasal sinuses were analyzed. The majority of patients were male, accounting for 98 cases (70%), while females comprised 42 cases (30%), indicating a significantly higher prevalence of such injuries among men.

The age distribution revealed that the highest proportion of patients belonged to the 31–45 years age group (37%), followed by patients aged 18–30 years (32%) and 46–65 years (31%). These findings suggest that individuals of working age are at the greatest risk of sustaining combined nasal and sinus injuries. Analysis of the etiology showed that domestic injuries were the leading cause, observed in 56 patients (40%). Road traffic accidents accounted for 42 cases (30%), while sports-related and occupational injuries were equally distributed, each representing 15% of the total cases (21 patients each). Regarding the type of injuries, nasal bone fractures were the most common finding, detected in 85 patients (61%). Injuries involving the maxillary sinuses were identified in 32 patients (23%), while frontal sinus injuries were observed in 23 patients (16%). In most cases, injuries were combined, involving both nasal bones and one or more paranasal sinuses.

Gender distribution

Out of 140 patients:

98 (70%) were male

42 (30%) were female

Age distribution

18–30 years: 45 patients (32%)

31–45 years: 52 patients (37%)

46–65 years: 43 patients (31%)

Types of injuries

Nasal bone fractures: 85 patients (61%)

Maxillary (sinus) injuries: 32 patients (23%)

Frontal sinus injuries: 23 patients (16%)

Radiological assessment demonstrated that X-ray imaging was performed in all patients (100%), while CT scans were utilized in 78% of cases, significantly improving diagnostic accuracy in complex injuries.

In terms of treatment, 60 patients (43%) received conservative management, whereas 80 patients (57%) required surgical intervention due to the severity of injuries, displacement of bone fragments, or involvement of sinus structures. Complication analysis revealed that nasal deformities developed in 18% of patients, functional breathing disorders were observed in 22%, and post-traumatic sinusitis occurred in 12% of cases. These outcomes emphasize the importance of early diagnosis and appropriate treatment strategies.

Conclusion. The present study provides a comprehensive clinical and statistical analysis of combined injuries of the nose and paranasal sinuses based on 140 patient cases treated in a multidisciplinary clinical setting. The findings demonstrate that such injuries predominantly affect males of working age, which may be associated with increased exposure to occupational, domestic, and environmental risk factors.

The analysis of etiological factors revealed that domestic injuries and road traffic accidents are the leading causes of combined nasal and paranasal sinus trauma. This highlights the need for preventive measures, including public awareness and safety interventions, to reduce the incidence of such injuries.

From a clinical perspective, nasal bone fractures were identified as the most common type of injury, often occurring in combination with maxillary or frontal sinus involvement. The use of computed tomography significantly enhanced diagnostic accuracy, particularly in complex and multi-structural injuries, confirming its essential role in modern diagnostic protocols.

Treatment outcomes indicate that more than half of the patients required surgical intervention, reflecting the severity and complexity of combined injuries. Conservative treatment was effective in selected cases with less severe trauma. However, the relatively high incidence of complications, including nasal deformities, breathing disorders, and post-traumatic sinusitis, underscores the importance of timely diagnosis, appropriate treatment selection, and careful follow-up.

In conclusion, combined injuries of the nose and paranasal sinuses remain a significant clinical challenge in otorhinolaryngology. Early and accurate diagnosis, supported by advanced imaging techniques, along with individualized treatment

strategies, are crucial for improving patient outcomes and minimizing long-term complications.

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