

## Deformation Analysis of Pneumatized Sphenoid Bone Caused Due to Elevated Intracranial Pressure Using Finite Element Analysis

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**Abstract :** In earlier days of technology, it was not possible to understand the nature of complex biomedical problems and were only left to clinical postulations. With advancement in science today, we have tools like Finite Element Modelling and simulation to solve complex biomedical problems. This paper presents how ANSYS WORKBENCH can be used to study deformation of pneumatized sphenoid bone caused by increased intracranial pressure. Intracranial pressure refers to the pressure inside the skull. The increase in the pressure above the normal range of 15mmhg can lead to serious conditions due to developed stresses and deformation. One of the areas where the deformation is suspected to occur is Sphenoid Bone. Moreover, the varying degree of pneumatization increases the complexity of the conditions. It is necessary to study deformation patterns on pneumatized sphenoid bone model at elevated intracranial pressure. Finite Element Analysis plays a major role in developing and analyzing model and give quantitative results.

**Keywords :** intracranial pressure, pneumatized sphenoid bone, deformation, finite element analysis

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