Abstract

Dentistry and medicine as part of empirical sciences, need to constantly develop in scientific field since the tasks it is facing today were unthinkable to solve few decades ago. Hence, dentistry is calling a greater improvement and demanding a more effective and long-term functionality.

Massive expansion of scientific research, new methods and opportunities represent a considerable amount of information to be efficiently processed. Despite the fact that the human brain is still the most advanced yet it has its own limitations. The development of artificial intelligence and mathematical modeling provides us with solutions to address and replace those limits.

In areas where the human brain has reached its limits (fatigue, the amount of data, agility etc.) artificial intelligence including expert systems is being increasingly promoted. It is clear that expert systems has found its place in a variety of industries ranging from banking to geology. Also, medicine is not an exception and is constantly progressing by several expert systems for decision support in daily clinical practice.

Mathematical modeling helps us to work with emphasis on long-term performance. We have the advantage to prepare everything in 3D models. Sometimes we can use a mathematical model such as conducting operations and evaluating the results of the chosen procedure. Certainly all of these contribute to achieve better results and function.

The points which have been mentioned above, assert the need to address this issue. In this paper we aim to describe how 3D modeling is applied on case studies in maxillofacial surgery. Additionally, there will be a submission of the expert system for differential diagnosis of cysts in the orofacial region, including classifications and their most basic description.