British researchers discover the origin of teeth in fish

BRISTOL, UK: The evolutionary origin of dental structures is highly debated among experts. Now, a team of international scientists has found evidence that teeth-like structures were present in the first jawed vertebrates, although it had long been assumed that teeth developed later.

The researchers discovered the origin of both teeth and jaws through studying fossils of Compgogiscus, one of the first primitive jawed fish. While performing 3-D microscopes, they were able to visualize every tissue, cell and growth line within the fish’s jaws, allowing them to study the development of the teeth, said Dr Martin Rücklin, lead author and researcher at the University of Bristol, UK.

“This technique allowed us to obtain a perfect digital model and very detailed internal views of the fossil without destroying it,” said Prof. Marco Stampanoni of the Paul Scherrer Institute, the largest research centre for natural and engineering sciences in Switzerland.

The CT scans demonstrated that some primitive fish possessed jaws with distinct dental ossifications composed of dentine and bone, the researchers said.

In contrast to the hypothesis that teeth were absent in the first jawed vertebrates and that they captured their prey with scissor-like jaw bones, the present study suggests that the development of tooth and jaw structures was interwoven.

The research was conducted by palaeontologists from the University of Bristol in collaboration with experts from the Natural History Museum in London and Curtin University in Australia and physicists from Switzerland.

Although previous studies have found a link between rheumatoid arthritis and tooth loss in patients, the complex relationship between the two conditions is not yet understood by scientists. However, the findings of a new study, presented recently at the Fresh Science national finals in Melbourne, Australia, suggest that it might be possible to treat gum disease and severe arthritis simultaneously.

In laboratory tests, the researchers replicated both conditions, which are the result of inflammatory responses in the body, by inducing gum disease and arthritis in mice. They found that animals with gum disease developed significantly worse arthritis. In addition, they observed signs of bone loss in the jaws of mice with arthritis alone and signs of bone loss in the joints of mice with gum disease alone.

The researchers are now testing whether treating periodontitis could also help to reduce the symptoms associated with arthritis by researching histone deacetylase inhibitors.

India council under scrutiny

A new report issued by the Comptroller and Auditor General of India has painted a poor picture of how the country’s Dental Council is managing dental education. Among other misconstructions, it found that a significant amount of dental institutions have not been inspected by the governmental body for years and that fees worth more than US$1,3 million to be paid by these colleges for the recognition and renewal of certain dental courses are outstanding. In addition, more students were admitted in some of the colleges than actually allowed by the 1948 Dentists Act.

The Middle East & Africa edition of DTI’s flagship publication Dental Tribune has been re-launched in October. Serving a market of 18,000 dental professionals, the edition is published by the Center for Advanced Professional Practices in Dubai, who signed a licence partner agreement with Dental Tribune International in early September.

Body fat is bad for your gums

A new study conducted at the Boston University School of Medicine in the US has revealed that having huge amounts of body fat could play a significant role in the development of periodontitis in men. Male participants with rapid weight gain had more progression of periodontal disease than those who had smaller weight gains.

Oral health linked to arthritis

Healthy teeth produce a radiant smile. We strive to achieve this goal on a daily basis. It inspires us to search for innovative, economic and esthetic solutions for direct filling procedures and CAD/CAM techniques.