Stone-age dental filling identified

Robert Selleck
DT America

SAN FRANCISCO, USA: A team of Italian and Australian re-
searches appears to have found physical proof that restorative
dentistry dates to the Stone Age. The researchers identified traces
of a dental filling made of bees-
wax in a Neolithic human tooth
discovered in Slovenia, and they
are saying it may be the “earliest
known direct evidence of [a] ther-
apic-palliative dental filling.”

The research findings were
published Sept. 19 in PLoS ONE,
the peer-reviewed, open-access
journal, accessible online at
www.plosone.org.

The team acknowledges in its
paper that it cannot be absolutely

certain that the beeswax filling
was placed in the tooth in an ef-
fort to address a dental problem
the individual was experiencing
while alive. But the paper identi-
fies that as being the most likely
of the possible scenarios that
would explain the presence of
the substance on a worn-down
tooth that otherwise would have
had exposed dentin.

“The tooth probably became
very sensitive, limiting the func-
tionality of the jaw during occlu-
sion. The occlusal surface could
have been filled with beeswax in
an attempt to reduce the pain [by]
sealing exposed dentin tubules
and the fracture from changes in
osmotic pressure (as occurs on
contact with sugar) and temper-

ture (hot or cold relative to the
oral cavity),” the team wrote.

The piece of jawbone with
five teeth still attached was dis-
covered long before the team’s
research was conducted. It was
excavated from a cave wall near
the village of Loche, Istria, in
Slovenia and was initially dated
to an age range of 6,655–6,400
years Before Present and the fill-
ing 6,045–6,440 years BP.

Based on the radiocarbon
analysis, the mandible was dated
to an age range of 0.655–0.400
years Before Present and the fill-
ing 0.655–0.440 years BP.

The researchers listed sev-
eral previously known examples
of ancient dentistry but said
there was no known published
documentation of the use of
“therapeutic palliative sub-
stance in prehistoric dentistry.”

The research team also refer-
cenced documentation on the use
of beeswax as a binding agent
in antiquity—and explained the

substance’s ability to remain pre-
served for long periods of time
because of its “extreme chemical
stability.” The team’s conclusion:
“In this emerging framework of
ancient dental therapeutic prac-
tices, the finding of a human
partial mandible associated with
contemporary beeswax, cover-
ing the occlusal surface of a
canine, could represent a pos-
sible case of therapeutic use of
beeswax during the Neolithic.”

The research project, the
researchers wrote, was “funded by
Friuli Venezia Giulia (Italy). The funders had no role in
study design, data collection
and analysis, decision to publish,
or preparation of the manus-
script.”

The team’s paper is titled,
“Beeswax as Dental Filling on
a Neolithic Human Tooth.”

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