Stone-age dental filling identified

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SAN FRANCISCO, USA: A team of Italian and Australian re-
searchers appears to have found physical proof that restor-
ative 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-
apeutic 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-
tort 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 tempera-
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 6,655–6,440
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 6,055–6,400
years Before Present and the fill-
ing, 6,045–6,440 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.”

In a note regarding the fund-
ishing of the research project, the
team wrote, “This work is part
of the ICTP/Elettra EXACT
Project (Elemental X-ray Analy-
sis and Computed Tomography)
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 manu-
script.”

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

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