Saber-toothed cat fossils provide evidence of canines able to puncture a skull

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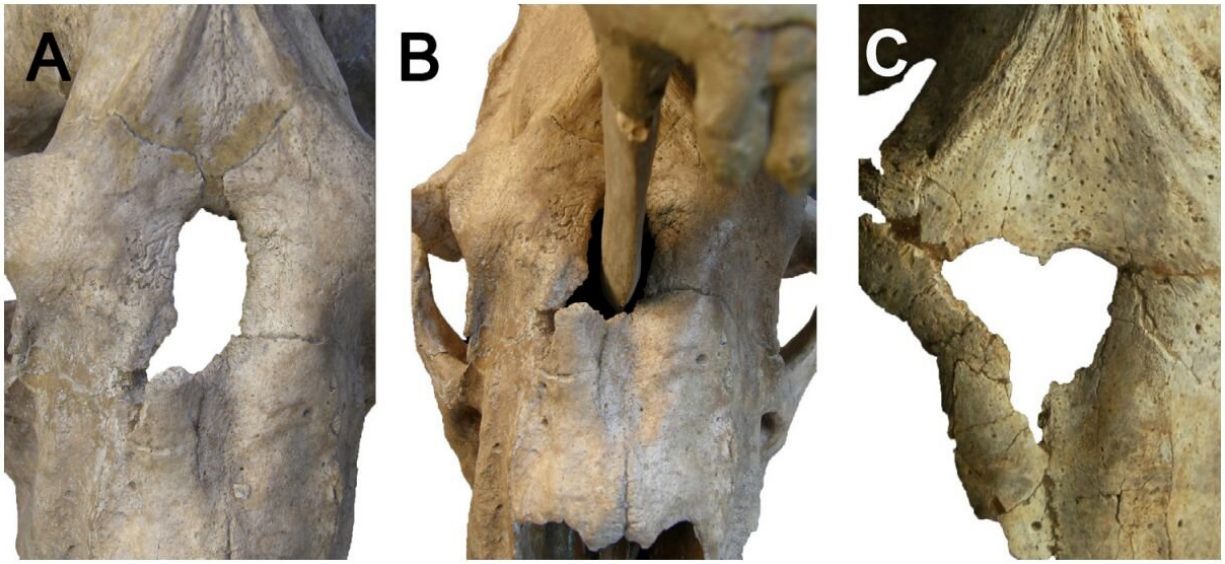

Detail of the injury of Smilodon populator specimen MCA 2046. B. Detail showing the canine of another Smilodon specimen inserted through the opened injury. C. Detail of the injury of specimen MRFA-PV-0564. Not to scale. Credit: *Comptes Rendus Palevol* (2019). DOI: 10.1016/j.crpv.2019.02.006

A team of researchers with members affiliated with several institutions in Argentina has found evidence that suggests the canine teeth of the saber-toothed cat were strong enough to puncture the skulls of other members of the same species. In their paper published in the journal *Comptes Rendus Palevol*, the group describes their study of saber-toothed

cat fossils and what they learned from them.

The saber-toothed cat was a formidable predator, of that there is little doubt—the species living in South America, *Smilodon populator*, grew to weigh 220 to 400 kg, was approximately 120 centimeters long, and had canine teeth that grew to be 28 centimeters in length. They lived during the Late Pleistocene Epoch (from 11,000 to 126,000 years ago). Paleontologists have believed that the canines of the big cats were too thin to puncture bone, but now that theory appears to be under fire. The researchers with this new effort report evidence of what appears to be a hole in an *S. populator* skull that was made by the canine of another *S. populator*.

The researchers report that they have actually found two *S. populator* skull fossils with holes in them consistent with a canine piercing. Both of the skulls were found in different parts of what is now Argentina, and both had a single hole between the eyes, but a little farther back—very similar to hole punctures in many modern cats (cheetahs, leopards and jaguars)—such cats, especially males, often get into serious fights, sometimes resulting in the death of one of the combatants. The researchers found that an *S. populator* canine fit perfectly into the hole in the skull. They tried the same test with other long-toothed animals and were not able to find any with teeth that fit into the holes. They even checked to see if the holes could have been made by a kick from a hoofed animal and were not able to find any that matched. The only fit was another saber-toothed cat canine, which suggests that the holes were made as the cats were fighting over territory, food or a potential mating partner.

More information: Nicolás R. Chimento et al. Evidence of intraspecific agonistic interactions in Smilodon populator (Carnivora, Felidae), *Comptes Rendus Palevol* (2019). DOI: 10.1016/j.crpv.2019.02.006