北海道の始新統幌内層における湧水活動履歴の復元の試み
Reconstruction of seepage history in the Eocene Poronai Formation, Hokkaido, Japan

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The Eocene Poronai Formation, central Hokkaido, is known to mark the oldest fossil records of vesicomyid bivalves in Japan. This study made an outcrop mapping of lithology, mode of fossils occurrence, and stable isotopic analyses to make clear the seep-habitats in initial stages of vesicomyid diversification through the Cenozoic age.
A series of irregular-shaped seep-carbonate rocks, about 1-2 m in diameter, vertically piled up in the outcrop section of massive siltstone. The carbonate rocks and the surroundings yield abundant shells of chemosynthetic bivalves, *Hubertschenkia ezoensis* and *Conchocele bisecta*. Their modes of fossil occurrences are divided into two types, 1) shell-concentrated lens and 2) sporadic patches and scattering, which alternate each other in the vertical section. The shell-concentrated lenses are mainly recognized in siltstone, whereas the scattering type is encompassed in the carbonate bodies.
It is noteworthy that all the shell-concentrated lenses were associated with calcitic concretions partly containing fluidized texture just below them. The fluidized part consists of mixture of 1) white-colored detrital micrite depleted in $\delta^{13}C$ (-38.05 to -22.91‰), 2) gray-colored micrite not depleted in $\delta^{13}C$ (4.87 to 9.01‰) and 3) black-colored sparitic cements with widely ranging values of $\delta^{13}C$ (-42.09 to 1.88‰). Detail lithological mapping show that such fluidized texture tends to be formed avoiding shell-rich part. These suggest that the alternating pattern of two modes of fossil occurrences was controlled by intermittent fluidizing events as follows. Sporadic biofacies was formed under the diffusive phase resulting in gradual rise of pore-water pressure. Over the critical point of pore-water pressure, fluidization was triggered in unconsolidated parts not rich in buried shell remains, which acted as a nucleus of precursor concretions. Such local fluidization caused a focused flow fostering shell-concentrated mode.

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