ABSTRACT: Three species of a canaliculated rudist Caprinula d'Orbigny, 1847, C. sharpei (Choffat, 1885), C. cedrorum (Blanckenhorn, 1890) and C. cf. boissyi d'Orbigny, 1840 and a radiolitid Sauvagesia sharpei (Bayle, 1857) are described from the Hummar Formation (upper Cenomanian) in NW Jordan, in the vicinity of Ajlun. Caprinula sharpei, C. cedrorum and S. sharpei are described for the first time from Jordan. Many specimens of S. sharpei are characterized by the presence of cavities flanking the lamellar myophores in the left valve and the apparence of the dorsal cavity and teeth/socket system moulds in the inner part of the outer shell layer of the right valve. A hiatus (or erosional unconformity) between Hummar Formation and upper Turonian Wadi As Sir Limestone Formation is suggested by the presence of karstic structures, reworked limestone clasts, and rudist fragments and a sharp boundary. Early diagenetic processes such as dissolution and silicification present in the loose rudist material is described.