We describe the distinctive but previously overlooked shape and position of the fat bodies of some scolecomorphid caecilians. Anteriorly positioned, finger-like fat bodies projecting into the coelom from narrow bases in the genital mesenteries are found in both sexes of all species of the East African caecilian genus Scolecomorphus and are unknown elsewhere. We interpret this as a visceral synapomorphy of Scolecomorphus that may be related to viviparity in this genus.