OEIS complex is an acronym for a specific, extremely rare, grouping of more commonly occurring congenital malformations consisting of an omphalocele (O), extrophy of cloaca (C), imperforate anus (I) and spinal defects (S). It is a midline defect occurring in early blastogenesis or in mesodermal migration. The incidence is not known, it has been estimated to be 1 in 200,000-400,000 pregnancies. The etiology is thought to be heterogeneous. Most cases occur sporadically but several reports show occurrence in siblings, concurrent occurrence in monozygotic twins and more frequent occurrence in IVF pregnancies. We report two cases of OEIS complex. Case I was recognized postnatally in a twin gestation. Case II, an IVF pregnancy, was diagnosed prenatally at 35 weeks’ gestation by ultrasound (US) and further confirmed by magnetic resonance imaging (MRI). The purpose of this report is to present two additional cases of this rare malformation, give further evidence of OEIS complex occurring more commonly in multiple gestations (monozygotic twins) and IVF pregnancies and to illustrate the importance of MRI in prenatal diagnostics in addition to US providing better prenatal counseling, perinatal care, and planning of reconstructive surgical management.