

A short note on Morphological aspects of camel embryos recovered from uterine flushing of superovulated female camels

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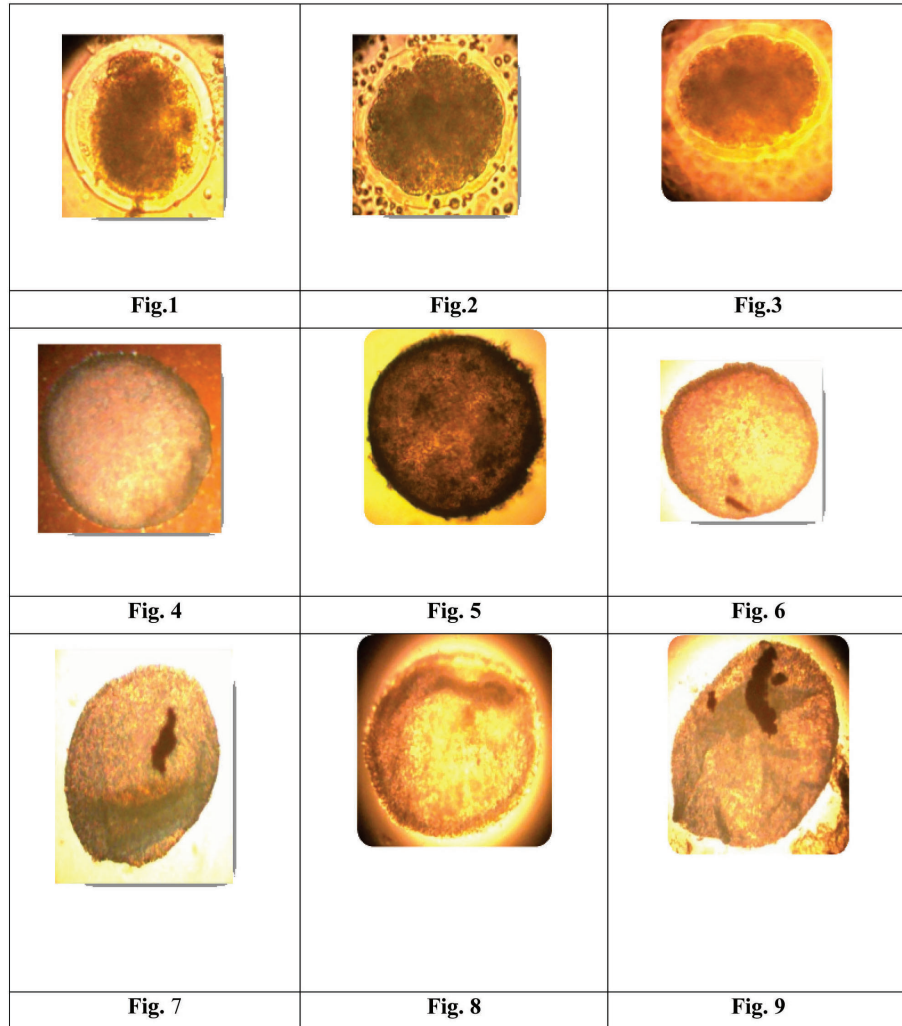
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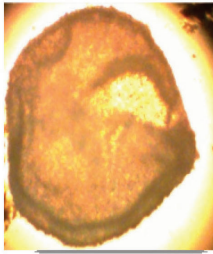

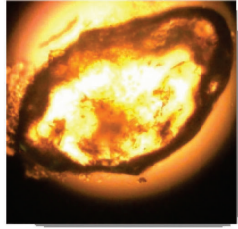
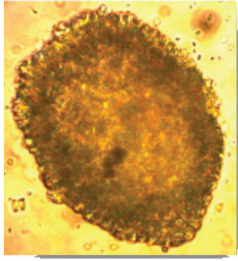
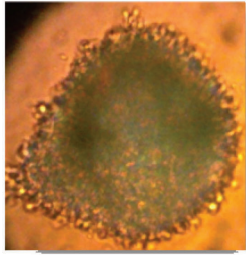
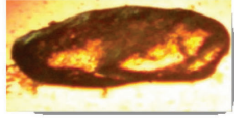


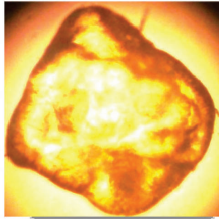
Identification of embryos in stages prior to its hatching when viewed under stereo-microscope presents no difficulties because of the a-cellular transparent coating called Zona-Pellucida. But majority of the embryos recovered from the camels are usually at the hatched blastocyst stages (Cooper *et al.*, 1990; Annouassi *et al.*, 1992; Cooper *et al.*, 1992; McKinnon *et al.*, 1992; Skidmore *et al.*, 1992; McKinnon *et al.*, 1994), which lacks Zona-Pellucida, initially they are spherical in shape (Figures - 4,5,6) but soon lose their spherical shape also (Figures-10, 11, 12), which may be of some concern for the beginners for identification of embryos, also it may be of concern to beginners is the size of embryos, which may vary from 175-500 um (Skidmore *et al.*, 1992), or may be 400-2500 um, bigger enough to be visible by necked eyes even (Anouassi and Tibary, 2012).

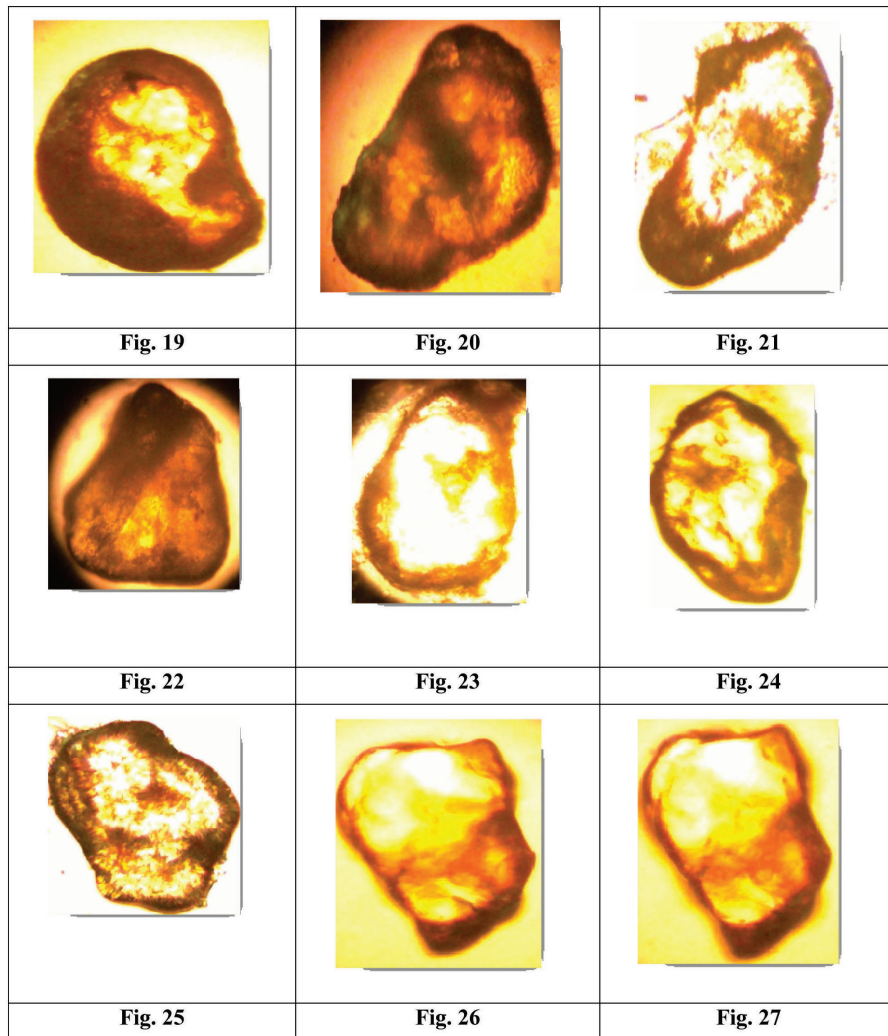
Although large commercial camel embryo transfer herd have been developed (Annouassi and Tibary, 2012)

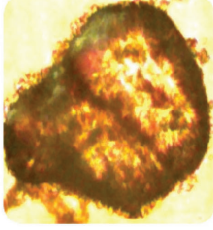
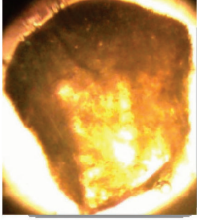
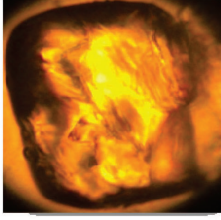
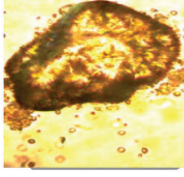

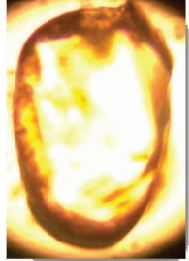
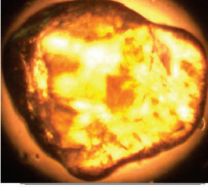
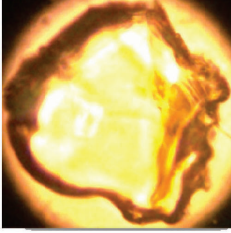
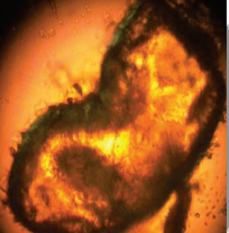
which indicate that status of technology is quite advanced but the publications bearing photographs of camel embryos particularly those loosing spherical shapes are scanty and it may be worthwhile to document the photographs of camel embryos, different stages and changes in shape and size recovered from super-ovulated female camels for the knowledge of the facts to beginners in this field. The figures of 36 eggs or embryos recovered from super-ovulated camels are presented below.

Figures 1-36: Eggs and Embryos recovered from super-ovulated female camels. 1-Unfertilized egg, (Non-transferable) 2 & 3-Early stage morula, (Non-transferable embryos in camel) 4, 5, 6, 7, 8 Hatched blastocoel spherical in shape, (Transferable embryos) 9 Almost spherical hatched blastocoel, transferable 10 Hatched blastocoel elongation to loose spherical shape, transferable 11, 12, 13, Hatched blastocoel, Signs of degeneration, non-transferable, 14- Hatching embryo,



		
Fig. 10	Fig. 11	Fig. 12
		
Fig. 13	Fig. 14	Fig. 15
		
Fig. 16	Fig. 17	Fig. 18



		
Fig. 28	Fig. 29	30
		
Fig. 31	Fig. 32	Fig. 33
		
Fig. 34	Fig. 35	Fig. 36

Transferable, 15-16- Hatched blastocoels, elongated, transferable, 17-34- Hatched blastocoels lost spherical shape, transferable embryos.

The eggs and embryos presented in this manuscript have been recovered from super-ovulated female camels by non-surgical flushing of their uteri 9 days after mating considering the day of mating as Day 0.

Figure-1 shows an unfertilized egg with the cytoplasm of the egg showing signs of shrinkage or being collapse, Figure-2 and 3 shows embryos who had undergone initial cleavage divisions and are in early morula stages. Recovery of the embryonic stages on day 9 after mating indicated that the development of these two embryos somehow got arrested. All these three embryos/eggs are of no use for embryo transplantations and hence are called non-transferable. Figure 4-8 are beautiful hatched blastocoels in spherical shape, all these embryos morphologically appear transferable embryos. Figure 9 is also almost spherical hatched blastocoel and is a transferable embryo. Figure 10 is also a hatched blastocoel in initial elongating stage, it is also a transferable embryo. Fig. 11, 12 and 13 are hatched blastocoels which somehow shown signs of degeneration and hence are non-transferable embryos, Figure 14 appears to be the hatching embryo, Figure 15 and figure 16 are hatched blastocoels which are elongated in shape and are transferable embryos. Figure 17-34

hatched blastocoels which have lost the spherical shape and are in different phases of elongations.

This publication will be helpful to those beginners in camel embryo transfer to identify different stages such as unfertilized egg, early cleavage undergoing morula, hatched blastocoels of different shape and sizes.

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