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OF THE WEEK

RESEARCH NOTES

ARTICLES

DEPARTMENTS

COVER: If China's children are any indication, its emphasis on prevention in mental health seems to be paying off. Visiting U.S. psychiatrists found youngsters in the People's Republic to be almost uniformly well-adjusted, friendly and expressive. But despite Chinese claims that stress has been all but wiped out, the adult population has not eluded psychiatric problems. See p. 140. (Photo by Ari Kiev)

Editorial and Business Offices
1719 N Street, N.W.
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LETTERS

Human clone success in debate

In reference to the article "Human clones: Partially achieved?" (SN: 2/17/79, p. 101), it should be stressed that the patients, female and male, were undergoing very legitimate surgical procedures, e.g., as cited, for acute torsion [in the males] of the testis. As an incidental step, the oocytes and spermatogonia were obtained with permission. In timing the female surgical procedures, i.e., near the time of ovulation as stated in the opening sentence of my paper in the Jan. 15 AMERICAN JOURNAL OF OBSTETRICS AND GYNECOLOGY, the basal body temperatures were plotted, the changes in the physical and chemical characteristics of the cervical mucus were noted, and hormonal assays were done, all in ascertaining the anticipated time of ovulation. The eggs were mature and ready for possible normal fertilization as evidenced by the presence of the secondary oocyte with the first polar body released. Only the halo of some 3 to 4,000 corona radiata and granulosa cells were removed from the surface of the zona pellucida, i.e., it remained intact around the egg proper. The human egg is generally considered fertilizable 12 to 24 hours.

With phase contrast microscopy, the cells could be assessed regarding the integrity of the morula-blastocyst stages, the intactness of their individual cells and the presence of the diploid number of 46 chromosomes in the cells. To ascertain the chromosomal number in every cell would necessitate teasing all the cells apart, which was not done.

With fusion of the male and female pronuclei of the egg in normal fertilization, holoblastic cleavage is initiated. Apparently a similar phenomenon ensues with the replacement of the egg nucleus at the secondary oocyte stage with the nucleus of the spermatogonium with its 46 chromosomes, i.e., the nucleus with its full set of 46 chromosomes and genes is sufficient stimulus to initiate the holoblastic cleavage.

Reference was made to the book on preconceptional sex selection. It was translated into 15 languages and with all the positive results, reported during the intervening years, a new edition was published, *Choose Your Baby's Sex* (Dodd, 1978). The principles of preconceptional sex selection are being employed in genetic counseling, e.g., in Boston and Denver in aiding in the prevention of hemophilia manifesting itself in male offspring, in genetics courses and as a subject of continuing medical education courses. The X and Y sperm populations have been confirmed with the advancement of quinacrine dihydrochloride staining and analysis by fluorescence microscopy. A success rate as high as 85 percent has been reported, obtained.

Landrum B. Shettles, Ph.D., M.D.
FACS, FACOG, FRSH
Randolph, Vt.

. . . the first statement that should horrify any decently educated reproductive physiologist, even at a 101 course level, is the description of a human ovum, exhibiting a first polar body and in which Dr. Shettles describes the presence of a nucleus, with a nucleolus. Anyone who has studied mammalian reproductive biology knows that when an egg exhibits a first polar body, there is no nucleus within the ooplasm. Indeed, meiosis has resumed and is, at that stage, stopped at a metaphase II, i.e., at metaphase of the second maturation division. That is to say, that on the equatorial plate of the second maturation spindle, we have a collection of still double-stranded chromosomes, which are naked, and not a nucleus, as described by Dr. Shettles. . . . Since there is no nucleus, there can not be a nuclear membrane, and the description given: "As the nucleus is drawn into the micropipette it assumes an elongated, ellipsoid shape without breaking of the membrane," is nothing but a figment of Dr. Shettles's imagination. Dr. Shettles, most probably, has been removing a degenerative vacuole, which is what his fig. 1 suggests.

Another horrifying consideration about the Shettles paper is his interpretation of figure 6. I am afraid that what Dr. Shettles is carefully describing as living morula after nuclear replacement is nothing else than a case of degenerative fragmentation. Indeed "blastomeres" shown on figure 6 are of uneven size and isolated from each other. After 72 hours in culture, a developing mammalian embryo has a totally different appearance. The phenomenon of "compaction" has taken place (after about 55 hr). This is the epithelialization of the superficial cell layer, which results from the appearance of several types of cell junctions between the superficial cells. The surface of the embryo is still "bumpy" but nevertheless continuous. This is a critical morphological change which represents the first step of morphogenesis. From now on, the embryo "knows" that it is made of two different cell types: the outer ones will provide the trophoblast, while the inner ones (inner cell mass) will provide the embryo proper. Exchanges with the external milieu become tightly controlled, which allows for fluid accumulation and cavitation of the embryo. . . . Finally, Dr. Shettles totally ignores the fact that somatic cell nuclei are exquisitely sensitive to aqueous media and are immediately destroyed. Their introduction in other cells requires techniques such as cell hybridization. . . .

In conclusion, on the basis of material described in Dr. Shettles's paper, it is by no stretch of imagination even possible to ask the question: "Human clones: Partially achieved?" as you do in your article. I am also very surprised that the points I am making above have escaped Dr. Mastroianni's scrutiny. This paper should have been totally rejected by the Editorial Board of the AMERICAN JOURNAL OF OBSTETRICS AND GYNECOLOGY because it is factually inaccurate and is misleading the reader.

Pierre Soupart, M.D., Ph.D.
Nashville, Tenn.