Recovery from Sterility after Mumps Orchitis

The following cases would appear to be unique both in recovery from azoospermia after mumps orchitis and also in that conception occurred in the presence of severe oligospermia.

Case 1

The patient, aged 34, was married on December 8, 1945, his wife being aged 35, and a daughter was born on September 18, 1946. He developed mumps in July, 1948, with bilateral orchitis, followed by azoospermia, which persisted for over a year, as recorded in four consecutive semen analyses. There was no loss of hair, change of voice, or alteration in weight or libido to indicate any other endocrine dysfunction.

On May 28, 1949, for the first time, 50,000 spermatozoa per ml. were present, but there was no motility. There were 27% abnormal types, but no pus cells were present. On October 23 hormone assay revealed urinary ketosteroids as 24.2 mg. per 24 hours and gonadotrophic hormone output exceeding 55 m.u. in the same time. These increased values indicated a primary testicular failure. By April, 1950, however, his wife was three months pregnant, but the semen analysis was reported at the previous density of 50,000 per ml., and for the first time there was 50% motility. Unfortunately, she aborted, the abortion being confirmed by the patient's doctor. This improvement in the sperm viability had occurred without any specific treatment.

In November, 1950, the semen analysis again revealed an azoospermia, and he was given a high dosage of vitamin B complex, zygotrophin and thyroid, 1 gr. (65 mg.) daily, for two months. The semen now began to show considerable variation in sperm density, ranging from 180,000 to fewer than 20,000 per ml., while the post-coital tests showed a persistent absence of sperm.

The patient's wife had an extensive cervical erosion, and on gas insufflation the tubes were occluded. Cervical culture revealed a coagulase-negative staphylococcus. It was thought that this was a post-abortal infection, which of itself might cause sterility. The cervix was therefore cauterized and she was given a five-day course of intramuscular procaine penicillin, 300,000 units daily, "sulphatriad" orally, and triple sulphacream intravaginally.

Further post-coital tests were not carried out owing to my prolonged illness, but the last semen analysis in July, 1951, revealed fewer than 20,000 spermatozoa per ml., almost all dead and abnormal, with many pus cells and much epithelial debris.

In January, 1951, the patient's wife did not menstruate, and semen analysis on February 1, 1952, revealed a volume of 2.5 ml., 1,360,000 spermatozoa per ml., and 50% motility after four hours, but on March 31, 1952, only an occasional spermatozoon was seen after a long search, and this was the case also at the time of the last analysis, on August 20, 1952.

The wife was delivered on October 4 of a healthy boy weighing 7 lb. 12 oz. (3.5 kg.).

The following is a record of the consecutive semen analyses in this case, and of the dates of conception :

July, 1948: Mumps orchitis.

February, 1949: Azoospermia; volume 2.5 ml.

March, 1949: Azoospermia.

April, 1949: Azoospermia.

May, 1949: Volume 3 ml., 50,000 per ml.; no motility; 27% abnormal forms.

January, 1950: Conception occurred.

April, 1950: 50,000 per ml.; 50% motility. Abortion at three months.

May, 1950: Volume 2.1 ml.: 47,000 per ml.; 50% motility after four hours; 31% abnormal forms.

November, 1950: Azoospermia.

March, 1951: 180,000 per ml.

July, 1951: 20,000 per ml.

December, 1951: Conception occurred.

February, 1952: Volume 2.5 ml., 1,360,000; 50% motility after four hours.

March, 1952: Almost azoospermia; only one sperm seen after long search.

August, 1952: Azoospermia.

October, 1952: Delivered of full-term child.

Comment

The wife showed the common type of sterility following abortion where there is cervical infection with a spastic tubal occlusion as a defence mechanism against ascending infection (Sandler, 1952). This was treated by cauterization of the cervix without anaesthesia and by the administration of sulphonamides and penicillin. As the staphylococcal infection was coagulase-negative it was probably more saprophytic than pathogenic. The absence of spermatozoa in the post-coital test could have been due as much to the non-receptivity of the mucus as to the poor quality of the sperm. Unfortunately, it was not feasible to do an invasion test against fertile semen at that time.

It is difficult to believe that any treatment of the husband was effective. The recovery was probably due to natural processes of regeneration from islands of normal germinal epithelium left behind after the orchitis; nor is it possible to say what the actual sperm density was when conception took place. It is significant that the percentage of abnormal forms when recorded was always within the usual limits, indicating that the few cells left were producing a normal range of spermatozoa.

In only one of twelve semen analyses in a period of two years was the density as high as 1,360,000 per ml., and in fact had ranged down to actual zero. The average for the total period of observation was 142,000 per ml., whilst the viability has remained fairly constant at 50% after four hours. Conception had therefore occurred at a lower density than the figure 1,360,000 per ml., and this confirms the findings of White and Barton (1951), Harvey and Jackson (1945), and Sandler (1952, 1953) that conceptions can occur with extremely low sperm densities.

The possibility of deception in such cases must always be borne in mind, but in this particular case I am satisfied, from my personal knowledge of both patients, that this did not occur.

Case 2

A man aged 32, who had two children, aged 5 and 3, complained on April 24, 1953, of a sublingual swelling which was rapidly followed by painful bilateral swelling of the submaxillary glands. There was no parotid swelling. Two days later he developed a bilateral orchitis which was very severe, the pain being intense. He became so toxic that he could not be nursed at home and was transferred to hospital, where the diagnosis of mumps was confirmed. He made a rapid recovery, and on June 9 a specimen of semen revealed one or two non-motile spermatozoa.

Unfortunately, this patient was not seen again until March 24, 1954, when his semen analysis was: volume 3.2 ml.; spermatozoa 4,250,000 per ml., 85% dead. Abnormal forms: amorphic head 13%, pinhead 1%, curled 2%, double tail, 2%; total 18%. Motility good, but many oscillating.

He was now in excellent health and very active. His wife was already pregnant, her last menstruation having been in February, 1954.

Bernard Sandler, M.D., D.M.R., D.R.C.O.G.,
Medical Officer, Infertility Clinic,
Manchester Victoria Memorial Jewish Hospital.

References

Harvey, C., and Jackson, M. H. (1945). *Lancet*, **2**, 99, 134.
Sandler, B. (1952). *J. Obstet. Gynaec. Brit. Emp.*, **59**, 202.
—— (1953). Ibid., **60**, 67.
White, M. M., and Barton, M. (1951). *British Medical Journal*, **1**, 741.