

Finding of the Spermatozoa in the Vagina Related to Elapsed Time of Coitus*

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Received December 15, 1973

Summary. This paper consists of two parts.

Part I. By examination of records of the rape cases in our department during the year 1971—1972, the maximal morphological survival time of the spermatozoa in the vagina of the victims lated to 6 days post coitum.

Part II. Examination of the vaginal smears from women who attended Family Planning Clinic revealed that within 5 days post coitum the daily reduction of the percentage of sperm positive specimen is nearly regular. By means of a graphical diagram, we can assume that the maximal morphological survival time of the spermatozoa in the vagina of a living woman is up to 7 days post coitum.

Zusammenfassung. Die Arbeit besteht aus zwei Teilen.

Teil 1. Bei der Beobachtung des Untersuchungsmaterials von Notzuchtsfällen von 1971 bis 1972 in unserem Department wurden die Spermatozoen 6 Tage nach dem Coitus im Vaginaausstrich dargestellt.

Teil 2. Bei der Untersuchung von 200 Vaginaausstrichen von Frauen, die die Family Planning Clinic besuchten, hatten wir folgende Ergebnisse. Der Prozentsatz der Zahl der Präparate, die spermapositiv waren, hatte täglich abgenommen. Die abnehmenden Werte erschienen regelmäßig bis 5 Tage nach dem Coitus. Bei der diagrammatischen Darstellung zeigte sich, daß kein Spermatozoen in den Präparaten 7 Tage nach dem Coitus nachgewiesen wurden. Man kann im allgemeinen annehmen, daß sich intakte Spermatozoen im Scheidenabstrich der lebenden Frau maximal bis zu 7 Tagen nach dem Verkehr erhalten.

Key words: Spermatozoa, finding in the vagina — Post coital elapsed time.

Introduction

Morphological survival time of the spermatozoa in the vagina is a subject to varying disagreements. Berg [1] stated that there are as a rule no spermatozoa present in the vagina of a living woman 20 hrs post coitum and after 24 hrs one could at best find only a few isolated spermatozoa. As mentioned in a famous English Text book [2] an elapsed time for finding of non-motile spermatozoa in the vagina is indicated as long as 17 days. This seemed unusual in the living woman but the spermatozoa could be demonstrated in vaginal smear from a dead woman 17 days post mortally [3]. In the living, finding of the spermatozoa in the vagina of the rape's victim limited within 20 hrs post coitum was reported [3]. Bornstein [4] suggested 24 hrs as maximal survival time for the spermatozoa deposited in the vaginal vault. Ponsold [5] stated that in the living woman finding of the spermatozoa in the vagina can be lated 35—42 hrs post coitum. Voigt [6] reviewing the

* Read Paper at the annual Congress of the Medical Association of Thailand at Bhuket on November 26th, 1973.

subject mentioned that motile sperms were observed up to 3 to 4 hrs and immotile sperms up to 66 hrs after coitus.

This paper attempts to determine how long the spermatozoa can be demonstrated from the vagina of the living woman post coitum.

Material and Method

Part I. Observation from the Rape's Victim

During the year 1971—1972, 174 alleged rape's victims were examined in our department. The spermatozoa from vaginal smear could be demonstrated in 55 cases. All smears were stained with haematoxyline and eosine following Pollak [7]. At the same time vaginal swabs were tested for acid phosphatase reaction using reagents and technique mentioned in Gradwohl's Legal medicine [8]. Grading of the reactions are as following:

| | |
|---------------------|-------------------------------------|
| strongly positive | = the colour appeared within 1 min, |
| moderately positive | = the colour appeared within 3 min, |
| weakly positive | = the colour appeared after 3 min, |
| negative | = no definite colour within 10 min. |

For bloody specimen we applied tube method for this test [9]. Elapsed time of sexual intercourse were studied from historical review.

Part II. Examination of Vaginal Smears from Women who Attend Family Planning Clinic

200 vaginal smears from the posterior fornix of the women who attend Family Planning Clinic were collected and stained with H. and E. The method of contraceptives among them is oral contraceptives or intra uterine device but not the condom used by the male partner. History of exact time of the last sexual intercourse was taken and recorded. All smears were examined under the microscope. Finding of at least one complete spermatozoon or two typical sperm heads is a criteria for spermatozoa positive. The number of positive smear related to the elapsed time of sexual intercourse was analysed.

Results and Discussion

The following conclusions can be drawn:

Table 1. Sperm finding comparing with acid phosphatase reaction

| Elapsed time | No. | Sperm finding | | Acid phosphatase reaction | | | |
|---------------|-----------|---------------|-----------|---------------------------|------------|----------------|----------------|
| | | massive | isolated | strongly | moderately | weakly | negative |
| Within 24 hrs | 40 | 16 | 24 | 12 | 20 | 8 | — |
| 32 hrs | 1 | — | 1 | — | 1 | — | — |
| 36 hrs | 1 | 1 | — | — | — | 1 ^a | — |
| 40 hrs | 2 | — | 2 | — | — | 2 | — |
| 48 hrs | 1 | — | 1 | — | — | — | 1 ^a |
| 62 hrs | 2 | — | 2 | — | 1 | 1 | — |
| 3 days | 1 | — | 1 | — | — | — | 1 ^a |
| 6 days | 1 | — | 1 | — | 1 | — | — |
| Indefinite | 6 | — | 6 | — | 3 | 3 | — |
| Total | 55 | 17 | 38 | 12 | 26 | 15 | 2 |

^a Bloody specimens, after centrifugation the supernatant fluid was removed and acid phosphatase reaction was performed by tube method.

Part I. The data of observation was summarised in the Table 1. The following remarks were noted.

1. The spermatozoa can be demonstrated from the vagina of the rape's victim 6 days post coitum.

2. Over a half sperm positive specimens collected within 24 hrs post coitum showed isolated spermatozoa.

3. In bloody specimens the spermatozoa could be demonstrated even though the acid phosphatase reaction was negative.

Table 2. Sperm findings after coitus

| Exam. | No. | Elapsed time in days | | | | | | | | | | |
|--------------|-----|----------------------|-------|-------|-------|-------|-------|-------|-------|---|-------|-----|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 10+ |
| Total | 200 | 65 | 41 | 30 | 19 | 12 | 7 | 8 | 3 | — | 3 | 12 |
| Sperm + | 128 | 56 | 33 | 19 | 9 | 4 | 3 | 2 | 1 | — | 1 | — |
| % of Sperm + | 64 | 86.15 | 80.48 | 63.33 | 47.31 | 33.33 | 42.85 | 25.00 | 33.33 | — | 33.33 | — |

Part II. The datas from Table 2 are represented as a graphical diagram in Fig. 1. The percentage of sperm positive specimen according to the elapsed time was presented by an inclined line. The graphical line between 2nd and 5th day post coitum is nearly a straight line. That means daily reduction of the percentage of sperm positive specimen during that period is regular. Irregularities are revealed in the percentage of positive specimens between the 6th and 10th day post coitum. The total number of specimens collected during that period is only 21 which is about 10 percent of the total specimens. The fate of the spermatozoa in the

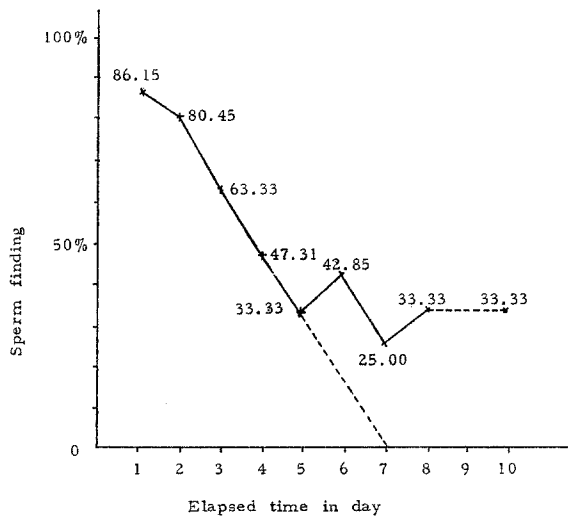


Fig. 1. Percentage of positive specimen to the elapsed time

vagina of the women from which these specimens were collected may deviate from normal pattern or the history about the last sexual intercourse is unreliable. So the number of positive specimens collected during 6th to 10th day post coitum can be omitted and not be brought into consideration.

It is assumed that the reduction of positive specimens is unchanged after 5 days post coitum. The regression line would cross the abscissa at the 7th day as shown in the Figure. Therefore it is expected that vaginal smears collected at the 7th day or later are exclusively sperm negative.

Our series consists of the women of average 28.5 years of age. The youngest is 17 years and the oldest is 48 years. This group of women presents the normal women of active sexual life.

So we can assume that maximal morphological survival time of the spermatozoa in the vagina of the living women of active sexual life is 7 days post coitum. This hypothesis is also supported by the data presented in part I.

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