

Morpho-Histological and Psychological Analysis of the Anti-Fertility Effects of Pulsatilla*

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SUMMARY

Pulsatilla 1000 potency administered prior to coitus and continued during days 1, 2 and 3 or 7, 8, 9 and 10 days of pregnancy bring about resorption of the foetuses in albino rats. This is brought about by an auto-immunoreaction, perhaps initiated by the foetus. A large number of lymphocytes infiltrate into the endometrium and destroy the developing foetus.

A similar reaction is seen in the rats administered 10,000 potency of the drug but it brings about certain abnormalities in the structural details.

INTRODUCTION

It is a well known fact that population increases by geometric ratio whereas the means to survival increases only by arithmetic proportion (Malthus)¹. In spite of all the technological advancements since then, the situation is not very much altered even today. For, individuation depends on the rate of genesis (Kar and Mukherjee)². It is this idea that lead to family planning and subsequently to fertility control, which triggered off an array of experimentations, resulting in the discovery of chemical, mechanical, hormonal and various other forms of contraceptives. In spite of this, Briggs and Briggs³ as late as 1978 said "Existing contraceptive methods have had so small an impact on the world population explosion that few people can doubt the need for developing new methods. Only when a wider range

of products is available, to suit more groups of people, will there be a lessening of the rate of population increase." Unfortunately, most of the contraceptives currently in use, are not readily acceptable nor are they easily accessible to a large percentage of our population. This may be attributed to the unpleasant side reactions they have been producing, cumbersome for daily use or self administration, or are too expensive for continuous use. Further, the surgical devices such as vasectomy or tubectomy, produces virtually permanent injury. It has also been found to bring in psychological depressions (Coleman⁴ and Beach)⁵. These are the factors that lead to the present probe. The motive is to find a cheap, non-toxic and "easy to handle" fertility control agent. Earlier work in this laboratory (Prasad and Chandrasekhar⁶, Prasad and Chandrase-

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khar⁷) showed that the Homoeopathic drug Pulsatilla brought in atresia of the Graafian follicles. Further, Homoeopathic drugs have many fold advantages over even indigenous drugs for only very minute quantities of the drug are sufficient to get the desired effects and are available in the refined form, so that a fertility control kit can be made available to every doctor and every home, if required.

MATERIAL & METHODS

Albino rats of HM stain weighing 100 ± 10 gms formed the material for this investigation. They were acclimatised for 15 days. During this period as well as throughout the experimental period they were fed on a special balanced diet. Water and food were allowed *ad libitum*. They were housed under perfect animal husbandary conditions and under natural L/D.

Prior to allowing them to mate with coeval males, the females were fed 0.2 ml each, alcohol (controls) 1000 and 10,000 potency *Pulsatilla nigricans*, (experimental groups). The normals were housed under identical conditions along with the experimental controls (alcohol fed) and experimental groups.

If sperms were detected in the vaginal smears the next day, that was fixed as *day one* of pregnancy.

The controls and the 1000 and 10,000 Pulsatilla fed rats were divided into :

Group A—alcohol/drug was administered during days 1, 2, and 3 of pregnancy and then on days 7, 8, 9, and 10.

Group B—alcohol or drug was administered only on days 7, 8, 9 and 10 of pregnancy.

Laparotomies were performed on days, 6, 17 and 21 of pregnancy to ascertain details of implantation and pregnancy. Serial paraffin sections (HE) of uterus were made to assess the tissue modifications wrought by the drug and alcohol administration.

The behaviour of these rats were analysed according to the expt. design. The rats were subjected to psycho-analysis every day and the behavioural patterns were recorded for 2 minutes. These recordings were statistically analysed using student's 'T' test and is graphically represented.

RESULTS

I. Laparotomy on day 6 showed that in both the groups :

- (1) Normals had 9 implantations
- (2) The alcohol treated controls had none
- (3) 1000 potency treated rats had 7 implantations but were smaller than the normals
- (4) 10,000 potency treated rats had freely floating blastocysts. No implantations had taken place.

II. Laparotomy on 17th day brought out :

- (1) Fully developed foetuses in the normals
- (2) None in controls
- (3) 1000 potency all blastocysts reabsorbed
- (4) 10,000 all blastocysts reabsorbed

III. Histological pictures of the uterus revealed that :

- (1) in the normals the endometrium had no lymphocytic infiltration into the endometrium
- (2) the controls showed normal, non-pregnant uterus
- (3) the 1000 potency treated endometrium had a heavy infiltration of lymphocytes, especially at the implantation sites. The blastocytes are seen being surrounded by lymphocytes
- (4) in the 10,000 potency cases also the endometrium is infiltrated by lymphocytes but not so heavily as in the 1000 potency cases.

IV. Sections taken at a later stage, and after the withdrawal of the drug showed a gradual return of the uterus to the normal condition after the 17th day onwards.

V. The behavioural pattern of the normal, 1000 and 10,000 potencies treated rats were almost identical whereas, that of the alcohol fed controls exhibited abnormal behavioural pattern.

DISCUSSION

Perhaps this is for the first time, a Homoeopathic drug is being tried as an anti-fertility agent and whose effects are subjected to scientific assessment.

The results indicate that the drug Pulsatilla in its 1000 and 10,000 potencies given during proestrus and then allowed to mate during oestrus, interrupts normal implantation. This may be explained thus. The drug

was administered at the time when the oestrogen progesterone overlapping phase was on. The drug being progestogenic prevented, at least, partially the oestrogen priming of the uterus. Therefore, the implantations became defective (Baird)⁸. This resulted in the embryos remaining mostly at the blastocyst stage, especially in the 1000 potency treated rats. Further, close histological observations of the uterii at the site of implantations reveal accumulation of lymphocytes (Figs. 4, 5, 6.). This is found only in the drug administered rats and not in the normals or in the controls. Therefore, it is an aseptic inflammation. This can be explained as due to, immunoreactions between the developing embryo and the mother (Irvine)⁹. It may be postulated here that the drug may be combining with receptor sites in the region of the placenta and producing antibodies (Talwar)¹⁰ eventually consume the foetal tissues (Baird). The phagocytic action which starts on the 6th day of pregnancy or earlier and continues to about the 17th day, the day on which laparotomy was performed showed clean uterii without any foetus in the 1000 potency treated rats and underdeveloped and unhealthy foetuses in the 10000 potency treated cases. Immunofluorescent studies will help confirm this postulation. due to lack of facility in this

laboratory conclusions are based on histological findings only. Nevertheless, the histological pictures are very satisfactory (Figs. 2 to 6). Mehrotra and Srivastava¹¹ have reported reabsorption of embryos in rats using 5-HT (5-Hydroxytryptamine). But this is a vasodilator which cannot be used on humans. But Homoeopathic drugs especially Pulsatilla is not a vasodilator. It is prescribed for many gynaecological maladies and has proved to be extremely useful (Boericke)¹², (Carleton)¹³, (Farrington)¹⁴, (Jahr)¹⁵, (Iyer)¹⁶. The same remedy given at the appropriate time potency and dosage acts as a fertility control agent.

The very interesting aspect of this investigation is the psychological analysis of the behavioural pattern of these rats. Extensive data collected and statistically analysed shows that the drug neither depresses nor excites the animal. This is strengthened by the behavioural pattern of the alcohol administered controls which exhibited accelerated movements, indicating excitement.

These facts prove conclusively that Pulsatilla in the 1000 potency is a safe, non-toxic, non-exciteble but effective fertility control agent, if given at the appropriate time.

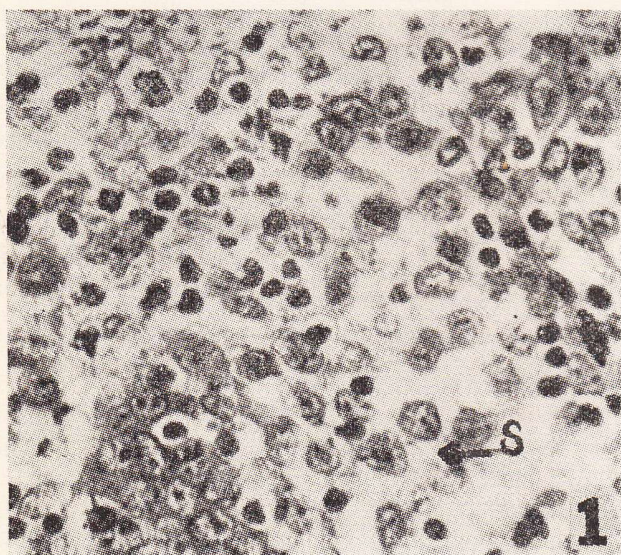


Fig. 1—Control—No infiltration of lymphocytes into endometrium.

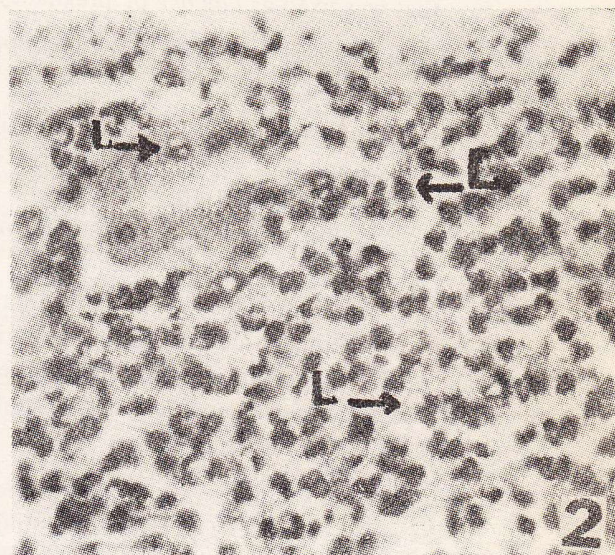


Fig. 2—1000 potency Pulsatilla treated heavy infiltration of lymphocytes (arrows-L) especially at the site of implantation stromal cells obliterated.

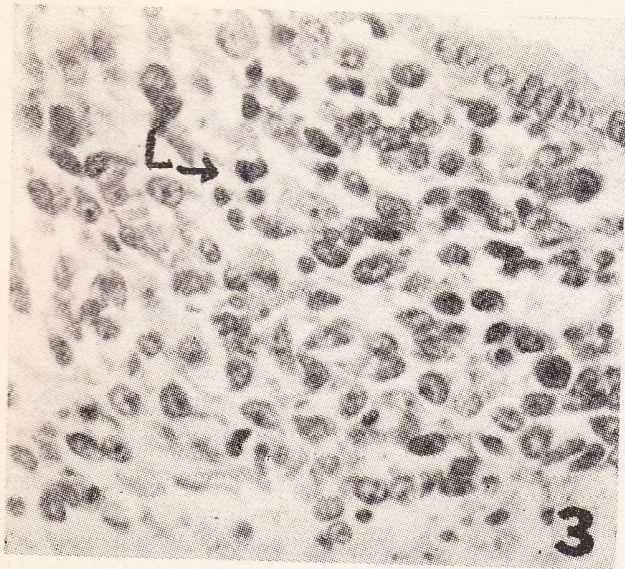


Fig. 3—10,000 potency Pulsatilla treated-infiltration of lymphocytes (arrows-L) into endometrium but comparatively less.

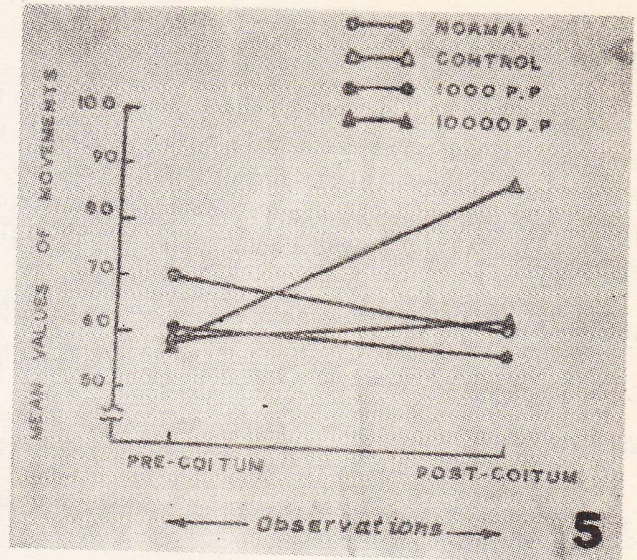


Fig. 5—Graphic statistical representation of behaviour in 4 groups of rats—normal, control and 2 experimental groups ('T' test).

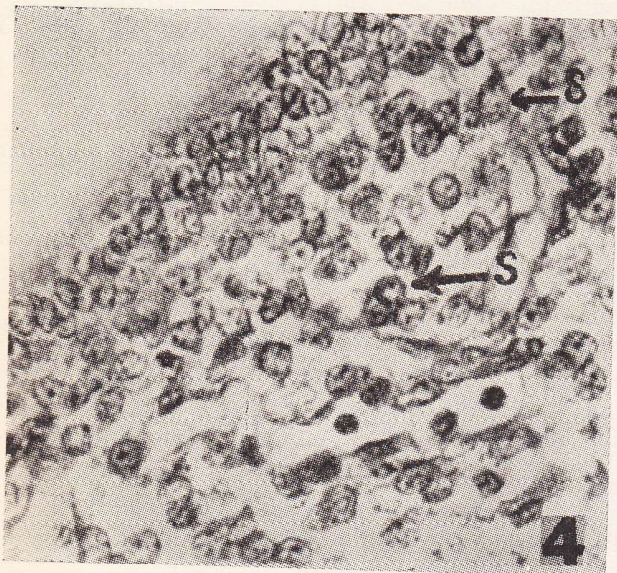


Fig. 4—Day 17 of pregnancy. 1000 potency treated, endometrium returning to normal. Stromal cells in sight (S)

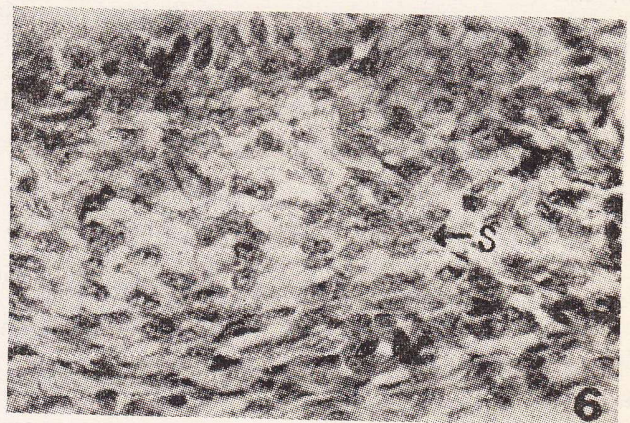


Fig. 6—T.S. of uterus—of non-pregnant rats 1000 potency treated for 5 days show normal uterus, lymphocytes not discernible.

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