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LONG-TERM EFFECTS OF BILATERAL VASECTOMY ON HAEMATOLOGICAL MEASURES IN LANGUR MONKEYS

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THE adverse effect of vasectomy on health has been extensively investigated during the past decade and its long-term deleterious effects such as thrombosis and atherosclerosis¹⁻³ have been discussed. Sackler *et al*⁴ suggested that vasectomy and vasoligation leads to leucocytosis in long-term vas occluded immature rats. The present investigation was undertaken to find out the long-term effects of bilateral vasectomy on haematological measures in langur monkeys.

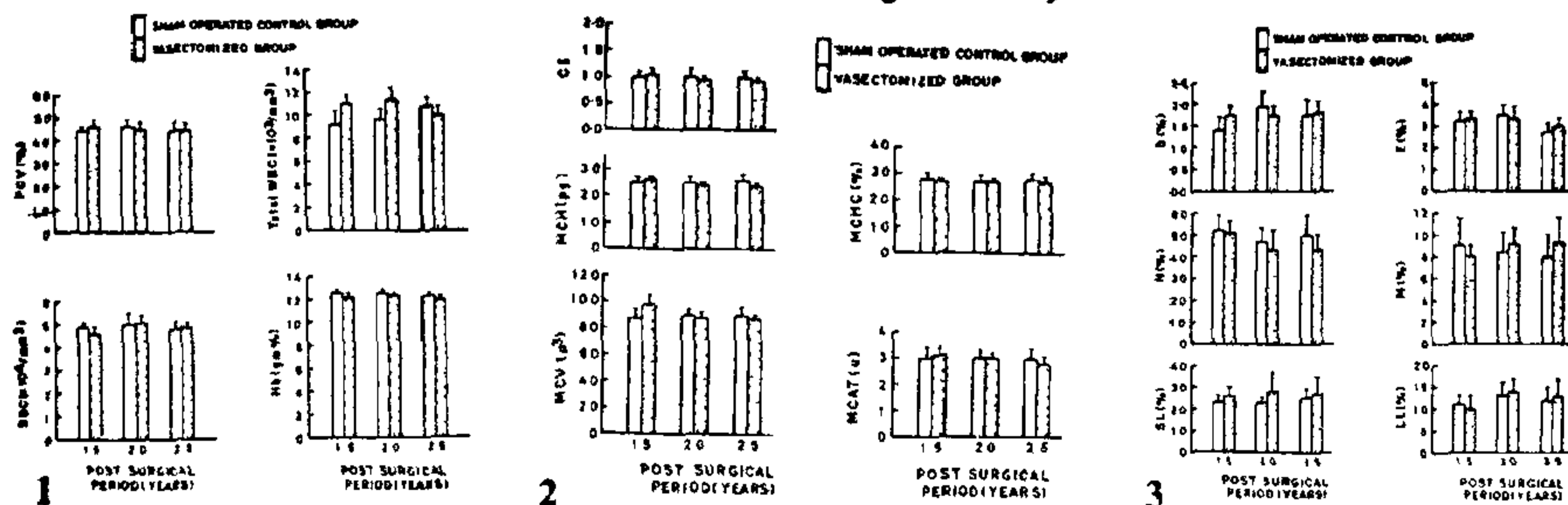
Adult male langurs weighing between 14 and 17 kg were quarantined for 2 months. The animals were housed individually in metallic cages and were fed on wheat chapaties, vegetables and soaked grams. Water was provided *ad libitum*. Animals were divided into two groups of six each for bilateral vasectomy and sham operations. Bilateral vasectomy was performed by the removal of 0.5-1 cm piece of each vas and double ligations. Sham operation exteriorized the vas but involved no cutting and ligations.

Post-surgical haematological analyses were done at 1.5, 2 and 2.5 year intervals both in vasectomized and sham-operated animals. Haemoglobin was estimated by Cyanmethemoglobin method⁵ on Fisher's haemophotometer model 55. Total RBC and WBC were counted on improved neubar ruling haemocytometer. Packed cell volume (PCV)⁶ was determined using capillary tubes of uniform diameter.

Standard haematological indices such as colour index (CI), mean corpuscular haemoglobin (MCH), mean corpuscular haemoglobin concentration (MCHC), mean corpuscular volume (MCV) and mean corpuscular average thickness (MCAT) were calculated and differential leucocyte counts were also made^{7,8}. Student's *t* test was applied to statistical analysis.

No significant differences were observed in basic haematological measures (Hb RBC, total WBC and PCV) at 1.5, 2 and 2.5 year intervals when compared with sham-operated controls (figure 1). Standard haematological indices also did not show any statistical change at any of the intervals examined (figure 2). Differential leucocyte counts in vasectomized animals were found within the control range at all the intervals studied after surgery (figure 3).

Sackler *et al*⁴ reported leucocytosis in 13 and 20 weeks vasectomized and vasoligated immature rats suggesting that vasectomy may cause inflammatory processes. Leucocytosis was associated with a significant and nonsignificant increase in lymphocytes and eosinophils respectively. No consistent changes were observed in neutrophil values. On the contrary Alexander *et al*⁹ reported no change in total RBC and WBC, lymphocytes and polymorphonuclear counts in 4 and 8 years vasectomized rhesus monkeys suggesting that vasectomy is a safe method of male sterilization. Similarly Petitti *et al*¹⁰ reported no changes in Hb, total WBC, PCV, MCH, MCHC and MCV levels in 10 or more years vasectomized men, which is in full agreement with the present findings in long-term vasectomized langur monkeys.



Figures 1-3. Long-term effects of vasectomy in langur monkeys. 1. On basic haematological measures. 2. On standard haematological indices. 3. On differential leucocyte count.

It is suggested that haematological tests form the very front line investigations on which many diseases are diagnosed. Roberts¹¹ reported thrombophlebitis in one to several years vasectomized men challenging the innocuousness of the procedure. Similarly Thomas Kisker and Alexander¹² suggested the possibility of thrombosis in long-term vasectomized rhesus monkeys. However no significant shift was observed in any of the haematological measures examined in long-term vasectomized langur monkeys^{13,14} suggesting that vasectomy is an innocuous procedure of surgical male sterilization that cause no adverse effects on the general health of the animal subjects.

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ANNOUNCEMENT

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