

*Untreated cycle*

Alkaline phosphatase activity was strongest in the late proliferative phase in the glandular and superficial epithelium, decreased in the latter half of the cycle, and disappeared in the late secretory phase. Activity was considered strong when more than two-thirds of the epithelium showed activity, moderate when about half the epithelium stained, and weak when less than a third showed evidence of activity. Alkaline phosphatase was also seen in capillary and arteriolar endothelium throughout the cycle, but arteries showed little or no activity.

Acid phosphatase showed a more generalized activity in both epithelium and stroma. Early in the cycle there was weak staining of all elements, in mid-cycle staining became heavier in the epithelial cells, while in the latter secretory phase there was a further increase of staining in the epithelium these three degrees of activity, were regarded as weak, moderate, and strong respectively.

Monoamine oxidase activity in the first half of the cycle was seen as dark granules or fine droplets scattered in the stroma and epithelium with no selective vascular staining. In the late secretory phase a purple-blue colour developed diffusely in the glandular epithelium, especially the luminal border. As a result of parallel biochemical studies by Southgate *et al.* (1967) it was found that the diffuse blue stain was associated with high monoamine oxidase activity in vitro and the granular stain with weak activity. Biopsies from 20 untreated and 24 treated patients in this series were also examined biochemically for monoamine oxidase activity; the results corresponded with the histochemical findings in each case, ranging from 1,000 to 20,000 units.

Enzyme activity in the cycles one month before and one to six months after treatment (Fig. 1, VI) was more closely related to the histological pattern than the exact day of the menstrual cycle. This accounts for the overlapping of results at 20 to 25 days, which depend on variations in time of ovulation. Flowers *et al.* (1966) found that while alkaline and acid phosphatase and diphosphopyridine nucleotide diaphorase enzyme activity was below normal in the second months after Ovulen therapy, normal activity was found during the third recovery month.