

## The *In Vivo* Autoradiography of Human Prostate— A Preliminary Communication<sup>1</sup>

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The success obtained in *in vivo* autoradiography of the stomach and other areas of the body induced us to investigate the possible use of this technique for study of the prostate in man. The autoradiographs obtained without unusual expenditure of time or money are of sufficient clarity that they may prove useful as adjuvants in the diagnosis of prostatic disease. For this purpose patients with various prostatic and urological problems were selected. Each patient received soluble phosphate (Phosphorus 32) intravenously in dosage 3-5  $\mu\text{c}/\text{kg}$ . Twenty-four hours later the patient had an enema, and a rubber finger cot of approximately 8-10 cm in length and 1.5 cm in diameter was placed in the rectum. This finger cot was specially prepared by being coated on its internal aspect with autoradiographic film suitable for beta radiation assay. Inside the finger cot which was expanded by 100-150 ml air in order to obtain contact of the rectal mucosa and the finger cot a rubber balloon was placed. The patient remained in the prone position from one to one and a half hours in a dark room. At the end of this time the air was released from the inner balloon and the finger cot removed, developed with autoradiographic developers and fixatives and inverted.

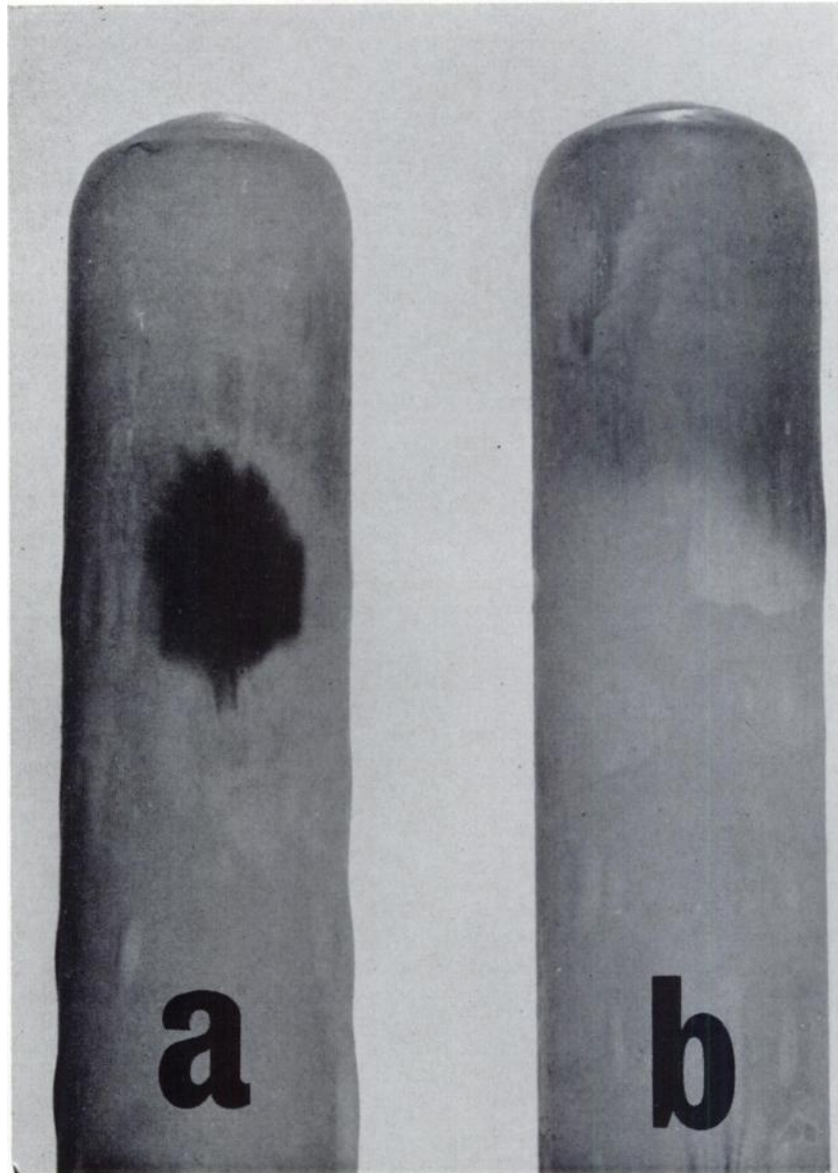
For visual comparison the autoradiographic result of a patient with a prostatic lesion is shown in Part A of Figure 1. Part B of Figure 1 shows an autoradiograph of the prostate of another patient without any apparent lesion.

In the first 12 patients reasonable correlation was noted between the pattern obtained on the finger cot coated with flexible emulsion and the findings on rectal examination and tissue examination. The dark areas usually corresponded to palpable areas of carcinoma of the prostate. There was some difficulty in interpreting the localization as we were not always certain that the rectal balloon remained essentially immobile.

In the second series of 12 patients in which a different batch of flexible emulsion cots was used, no correlation was observed between dark areas and findings on palpation and histologic examination. In addition, in these within 24 hours after exposure the majority of the surface of the flexible emulsion turned completely gray to black and no definite pattern was observed.

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**Fig. 1.**

We are continuing at present with a third group of newly processed finger cots which we hope will give us results somewhat similar to our original observations. This avenue of investigation shows some promise but at present much difficulty in obtaining reproducible results has been encountered. Also up to the present no difference could be observed between some active benign lesions and malignancies.

**ACKNOWLEDGMENT**

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