

- TO BETTER UNDERSTAND THE VATERIAN
REGION IN HEALTH AND DISEASE

The Roentgen Aspects of THE PAPILLA AND AMPULLA OF VATER

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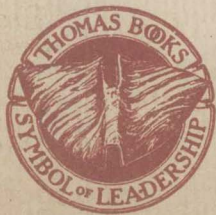
The advances in surgical fields whereby malignant lesions of the papilla and ampulla of Vater can be successfully radically resected have made it practically mandatory for the roentgenologist to recognize these lesions earlier.

Roentgenologically considered, what are the criteria for appraising any given major papilla or Vaterian ampulla as normal or abnormal? The answer cannot be found in the existing roentgen literature so the authors have searched for the answer and set down their findings.

The approach is roentgen study from the basic anatomic (post-mortem) and from the practical (in vivo) standpoints.

(continued on front flap)

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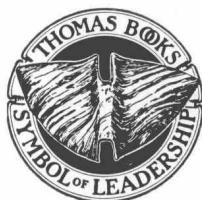
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The Roentgen Aspects of
The Papilla and Ampulla
of Vater

Dedicated to

A man who has brought vitality, intelligence and a
deep sense of humanity to the field of Radiology —

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PREFACE

ROENTGENOLOGICALLY considered, what are the criteria for appraising any given major papilla or Vaterian ampulla as normal or abnormal?

The inability to properly answer this question represents the primary stimulus for this monograph. Repeated references to the existing roentgen literature failed to satisfactorily crystallize in the authors' minds any given set of criteria which could be applied in such a manner as to render an authoritative roentgen interpretation to any given case.

It was, therefore, appreciated that the subject matter warranted further roentgen study from the basic anatomic (postmortem) and from the practical (in vivo) standpoints. The microscopic pathological findings obtained from surgical specimens and from autopsy material served as a bridge of explanation for those roentgen findings which did not conform to the normal basic anatomical types (including variants).

An important corollary aspect of the subject was to attempt to determine:

1. Whether there is normally a true regularly-present ampullary dilatation (ampulla of Vater) at the junction of the terminal ends of the common and pancreatic ducts or whether it is a mythical designation whose existence has been perpetuated by anatomists ever since 1720 when Vater first supposedly emphasized its existence; and
2. Whether an ampulla occurs only occasionally in the normal but more commonly under pathological conditions and therefore is more potential than real.

The main guiding thought, therefore, has been the complete presentation of the roentgenologic survey of the anatomy, physiology and pathological states of the Vaterian region.

The advances in surgical fields whereby malignant lesions of the papilla and ampulla of Vater can be successfully radically resected have made it practically mandatory for the roentgenologist to recognize these lesions earlier.

While the direct roentgen interest has been primarily focused upon the papilla and ampulla of Vater, and the supraampullary segments of common and pancreatic ducts, the obvious necessary spillover of consideration into the adjacent structures (notably the duodenum) has made it necessary to consider their abnormalities and the roentgen methods for their diagnosis to the extent deemed necessary. This necessity was especially appreciated and heightened when the chapter on differential diagnosis was formulated.

We have been able to collect certain specific roentgen data as the result of:

1. Special roentgen and microscopic studies on the normal Vaterian segments of over 100 postmortem specimens, and
2. Many surgical and postmortem follow-ups on cases of Vaterian disease.

Accordingly, it is the purpose of this monograph to develop this data into definitive roentgen criteria in order that the Vaterian region may be better understood in health and disease.

The authors have fed on many leaves and tried to spin a fine thread of meaning through all the heterogeneous and isolated contributions as well as their own original work on the subject. Naturally in so doing they were compelled to exercise the liberties which writers must take, if the purpose in writing is to be fulfilled.

The authors wish to thank Dr. Arnold Joffe for his participation in the very early planning of Chapter IX and for his help in collecting the 500 gastrointestinal series upon which Table V is based.

The consultant on illustrations was Mr. Sidney Shapiro who contributed greatly.

The authors wish to thank General R. G. DeVoe, Manager; Dr. Irvin J. Cohen, Chief, Professional Services; and Dr. Earl C. Gluckman, Assistant Chief, Professional Services; of the Veterans Administration Hospital, Bronx, New York, for their sincere and willing administrative help in making this monograph possible. Their constant appreciation of the authors' problems was very gratifying.

The authors are very deeply indebted to Dr. Edward A. Boyden, Professor of Anatomy, University of Minnesota, for permission to include his literal translations of the more pertinent passages of the older literature on the Vaterian region in their original 16th and 17th century Latin versions and for his kindness in supervising the prep-

aration of the sections on comparative anatomy, embryology, and physiology which are chiefly based on the original works of Boyden; Schwegler and Boyden; Kreilkamp and Boyden; and Boyden, Bergh and Layne.

M.H.P.

H.G.J.

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• CHAPTER I •

INTRODUCTION

FOR PURPOSES of teaching convenience the Vaterian segment as used in this monograph may be considered as those structures which extend obliquely downward from the outer superior margin of the duodenal window to the orifice on the duodenal surface of the major papilla (including its caudally appended fold or frenulum). It therefore includes the following, depending on the regional anatomical disposition:

1. *When an ampulla is present:* the major papilla, the ampulla, the supraampullary intraduodenal portions of the common bile and pancreatic ducts, and also their investing circular smooth musculature, collectively known as the musculus proprius or sphincter of Oddi.
2. *When there is no ampulla:* the major papilla, the intraduodenal portions of the common bile and pancreatic ducts and also their investing smooth musculature, collectively known as the musculus proprius or sphincter of Oddi.

It is apparent that the cephalad portions of these structures are intramural in the duodenal musculature and that the caudad portions elevate the duodenal submucosa and mucosa to form the elevation known as the papilla. Obviously the degree of this elevation varies among individuals and depends chiefly upon the size of the Vaterian structures located just medial to the duodenal musculature and on the type of the regional duodenal mucosa.