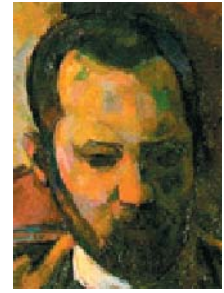


CASE TEACHING NOTES for “A Case of a Pheochromocytoma”

by

David F. Dean
Department of Biology
Spring Hill College



INTRODUCTION

Pheochromocytomas are functional neoplasms arising from the medulla of the adrenal gland. The cells of the adrenal medulla normally secrete hormones classified as catecholamines in response to stimulation by the sympathetic division of the autonomic nervous system during a “fight-or-flight” response. The cells comprising pheochromocytomas secrete catecholamines in an unregulated and excessive fashion. The symptoms produced by such neoplasms directly relate to the effects of catecholamines on target tissues. Thus, the educational benefit of studying such a disease state is to reinforce an understanding of the effects that catecholamines normally have upon target cells during activation of the sympathetic division of the autonomic nervous system.

Prior to preparing and discussing this case, students must have an understanding of the functional relationship between the hypothalamus and the adrenal medulla. In addition, they should have a general knowledge of the two divisions of the autonomic nervous system, and the role each plays in maintaining body homeostasis.

Objectives

Upon completion of the case, students will have learned the following:

- the meaning of the term “functional neoplasm” as it relates to benign neoplasms arising from endocrine organs;
- the role of the adrenal medulla in the “fight-or-flight” response;
- the effects that the hormones of the adrenal medulla have upon the cardiovascular system;
- the effect that catecholamines have upon a variety of target cells and tissues throughout the body;
- the classification scheme of adrenergic receptor subtypes, and the concept of receptor-mediated target cell response; and
- the medical and surgical management of pheochromocytomas.

This case study has been used in a sophomore-level course in human anatomy and physiology taught to pre-medical and nursing students. In addition, it has been used in a senior-level elective course in general physiology taught primarily to pre-medical students.

CLASSROOM MANAGEMENT

Students receive a printed copy of the case study at least one week prior to the class in which it will be discussed. They are asked to review the concepts covered in the case and then answer the questions to the

best of their ability. Reference materials are available for their use in the college library. Although I don't arrange the students in groups, I encourage them to work together in preparing the case. Students are not required to turn in written answers to the questions, but, rather, are called upon at random to answer the questions during the class discussion. Questions concerning the material covered in the case study are included in the next regularly scheduled examination.

Answer Key

Answers to the questions posed in the case study are provided in a separate answer key to the case. Those answers are password-protected. To access the answers for this case, go to **the key**. You will be prompted for a username and password. If you have not yet registered with us, you can see whether you are eligible for an account by reviewing our **password policy** and then apply online or write to **answerkey@sciencecases.org**.

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