"List" = 1-3 words
"State"= short statement/ phrase/ clause

UNIVERSITY HOSPITAL, GEELONG
FELLOWSHIP WRITTEN EXAMINATION
WEEK 26– TRIAL SHORT ANSWER QUESTIONS Suggested answers

PLEASE LET TOM KNOW OF ANY ERRORS/ OTHER OPTIONS FOR ANSWERS

Please do not simply change this document - it is not the master copy !

Question 1 (18 marks)

A 27 year old woman presents to your emergency department with left calf pain for the last 2 days. She underwent a left knee arthroscopy 10 days ago. She is otherwise healthy, takes no medications and has no drug allergies.

a. List four (4) features on examination that would increase your suspicion for pulmonary embolism. (4 marks)
- **HR > 100**
- **RR > 16**
- **Fever > 37.8 °C**
- **Unilateral leg swelling**
- **+ Homan's test**
- **Signs of right heart strain- Loud S2, ↑ Splitting S2, gallop rhythm, RV heave, ↑JVP, prominent a waves**
- **Rub**

Simplified Wells Score	*PERC (Pulmonary Embolism Rule-out Criteria) rule*
• *clinically suspected DVT — 3.0 points* • *alternative diagnosis is less likely than PE — 3.0 points* • *tachycardia (heart rate > 100) — 1.5 points* • *immobilization (≥ 3d)/surgery in previous four weeks — 1.5 points* • *history of DVT or PE — 1.5 points* • *hemoptysis — 1.0 points* • *malignancy (with treatment within 6 months) or palliative — 1.0 points* *Score: 0-1 incidence PE 3-4% 2-6 incidence 20% ≥ 7 Incidence > 60%*	• *age < 50 years* • *pulse < 100 beats min* • *SaO2 >or= 95%* • *no hemoptysis* • *no estrogen use* • *no surgery/trauma requiring hospitalization within 4 weeks* • *no prior venous thromboembolism (VTE)* • *no unilateral leg swelling* *Absence of all ~ 3% PE*

b. List four (4) positive ECG findings that would support the diagnosis of Pulmonary Embolism. (4 marks)
- **Sinus Tach** (most common abnormality- ~ 50%)
- **RAD**
- **S1Q3T3 pattern**
- **RV strain pattern- TWI V1-4 (+/- II,II, aVf)**
- **R atrial enlargement (peaked p waves)**
- **RBBB- complete/incomplete**
- **Dominant r wave V 1**
- **Clockwise rotation (shift R/S transition towards V6)**
- **AF/flutter/atrial tachycardia**
- **Non specific ST segment/ T wave changes**

c. List four (4) positive CXR findings that would support the diagnosis of Pulmonary Embolism. (4 marks)
- **Cardiomegaly**
- **Elevated Hemi diaphragm**
- **Small pleural effusion**
- **Pulmonary infiltrates - esp. wedge shaped**
- **Westermark's sign- abrupt cut-off of peripheral vessels**
- **Hampton's hump- pleurally based Opacification with convex border medially**
- **Fleishner sign- Prominent PA** *(distension from large PE)*
- **Abnormal radiolucency in some zones**
- **Loss of lung volume**

d. State two (2) advantages in the performance of a CTPA versus a VQ scan for this patient. (2 marks)
- **Demonstrates clot burden**
- **Identify alternative Dx**
- **Assessment of RV dilatation may affect risk stratification**

NB: Use clinical advantages- avoid "fast" "readily available"

e. State four (4) indications for thrombolysis for Pulmonary embolism. (4 marks)
- **Cardiac arrest in suspected PE**
- **Confirmed PE & cardiogenic shock/ Rx resistant hypotension**
- **Confirmed PE & Rx resistant hypoxia**
- **Massive PE- > 70% lung involved**

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JOURNAL OF THE AMERICAN COLLEGE OF CARDIOLOGY
© 2016 BY THE AMERICAN COLLEGE OF CARDIOLOGY FOUNDATION
PUBLISHED BY ELSEVIER
VOL. 67, NO. 8, 2016
ISSN 0735-1097/$36.00
http://dx.doi.org/10.1016/j.jacc.2015.11.061

THE PRESENT AND FUTURE

STATE-OF-THE-ART REVIEW

Management of Pulmonary Embolism

An Update

Stavros V. Konstantinides, MD, PhD,[a,b] Stefano Barco, MD,[c] Mareike Lankeit, MD,[c] Guy Meyer, MD[d]

ABSTRACT

Pulmonary embolism (PE) remains a major contributor to global disease burden. Risk-adapted treatment and follow-up contributes to a favorable outcome. Age-adjusted cutoff levels increase D-dimer specificity and may decrease overuse of imaging procedures and overdiagnosis of PE. Primary systemic fibrinolysis has an unfavorable risk-benefit ratio in intermediate-risk PE; catheter-directed techniques are an option for patients with hemodynamic decompensation and high bleeding risk. New oral anticoagulant agents are effective and safe alternatives to standard anticoagulation regimens. Recent trial data do not support insertion of cava filters in patients who can receive anticoagulant treatments. Remaining areas of uncertainty include the therapeutic implications of subsegmental PE, the optimal diagnostic approach to the pregnant patient with suspected PE, and the efficacy and safety of new oral anticoagulant agents in patients with cancer. Campaigns to increase awareness combined with strategies to implement guideline recommendations will be crucial steps towards further optimizing management of acute PE. (J Am Coll Cardiol 2016;67:976-90) © 2016 by the American College of Cardiology Foundation.

Venous thromboembolism (VTE), which encompasses deep vein thrombosis (DVT) and its most dangerous complication, acute pulmonary embolism (PE), represents a major threat to the health, the well-being, and occasionally, the lives of a large number of patients worldwide. The annual incidence rate of VTE ranges between 75 and 269 cases per 100,000 persons, as shown by studies in Western Europe, North America, Australia, and southern Latin America, with subjects 70 years of age or older having an incidence of up to 700 per 100,000 (1). As the risk of VTE approximately doubles with each decade after the age of 40 years, it is to be expected that an increasing number of people in aging societies throughout the world will be diagnosed with the disease in the years to come. Despite the epidemiological relevance of PE and its high short-term mortality, a relative lack of public awareness was demonstrated by a global survey that included more than 7,200 responders (2). In particular, the level of awareness was clearly lower than that for other thrombotic disorders, such as heart attack and stroke, or compared with diseases previously addressed by sensitization campaigns, such as breast cancer, prostate cancer, and acquired immunodeficiency syndrome (2).

The present paper critically reviews recent data that have contributed to substantial improvement of

From the [a]Center for Thrombosis and Hemostasis, University Medical Center of the Johannes Gutenberg University, Mainz, Germany; [b]Department of Cardiology, Democritus University of Thrace, Alexandroupolis, Greece; and the [c]Hôpital Européen Georges Pompidou, AP-HP, Université Paris Descartes, Sorbonne Paris Cité, and [d]INSERM UMR 970, Paris Cardiovascular Research Center, Paris, France. The work of Drs. Konstantinides, Barco, and Lankeit was supported by the German Federal Ministry of Education and Research (BMBF 01KD1103 and 01KD1383). The authors are responsible for the contents of this paper. Dr. Konstantinides has received consultancy and lecture honoraria from Bayer HealthCare, Boehringer Ingelheim, Daiichi-Sankyo, and Pfizer-Bristol-Myers Squibb; payment for travel accommodation/meeting expenses from Bayer HealthCare; and institutional grants from Boehringer Ingelheim, Bayer HealthCare, and Daiichi-Sankyo. Dr. Barco has received an educational travel grant from Daiichi-Sankyo. Dr. Lankeit has received consultancy and lecture honoraria from Actelion, Bayer HealthCare, Daiichi-Sankyo, and Pfizer-Bristol-Myers Squibb. Dr. Meyer has received payment for travel accommodation/meeting expenses from Bayer HealthCare, Leo Pharma, and Daiichi-Sankyo; board membership, consultancy, and lecture honoraria to his institution from Bayer HealthCare, Pfizer-Bristol-Myers Squibb, Sanofi, Leo Pharma, and Daiichi-Sankyo; and institutional grants from Boehringer Ingelheim, and Leo Pharma.

Manuscript received October 14, 2015; revised manuscript received November 11, 2015, accepted November 17, 2015.

Listen to this manuscript's audio summary by JACC Editor-in-Chief Dr. Valentin Fuster.

REVIEW

Pulmonary Embolism: Making Sense of the Diagnostic Evaluation

Timothy Robert Wolfe, MD
Stephen C. Hartsell, MD

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Received for publication November 29, 1999. Revisions received May 11, 2000; June 12, 2000; August 24, 2000; and September 14, 2000. Accepted for publication September 19, 2000.

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0196-0644/2001/$35.00 + 0
47/1/111764
doi:10.1067/mem.2001.111764

Despite the publication of the Prospective Investigation of Pulmonary Embolism Diagnosis in 1990, the diagnostic evaluation of pulmonary embolism continues to be approached in an inconsistent fashion. The reasons for this are unclear but likely have to do with inadequate methods for predicting pretest probability of disease and the inconvenience and perceived risk of pulmonary angiography. Because pulmonary embolism and its treatment carry substantial risk of morbidity and mortality, a consistent approach to evaluation is desirable. This article reviews large, prospective studies that suggest that it may be unnecessary to diagnose pulmonary embolism with the certainty that pulmonary angiography allows. Finally, the article proposes an algorithm that may be acceptable to patients and clinicians alike if safety is confirmed in future prospective studies.

[Wolfe TR, Hartsell SC. Pulmonary embolism: making sense of the diagnostic evaluation. *Ann Emerg Med.* May 2001;37:504-514.]

INTRODUCTION

In 1999, a poll of 623 emergency physicians in North America identified the diagnostic evaluation of pulmonary embolism (PE) as the clinical situation for which they felt most in need of a decision rule.[1] Interestingly, a decision rule for evaluation of PE was published in 1990 by the Prospective Investigation of Pulmonary Embolism Diagnosis (PIOPED) investigators.[2] The PIOPED investigation was a multicenter, prospective study that defined a method for determining the presence or absence of PE with reasonable certainty in 96% of patients. However, the PIOPED approach is infrequently followed by clinicians in both academic and private institutions.[3-12] Because of this lack of consistency in evaluation, PE continues to be both an underdiagnosed and overdiagnosed disease.[3-7,9-11,13-15] This article reviews advances in the evaluation of PE and suggests an algorithm that is evi-

American Thoracic Society Documents

An Official American Thoracic Society/Society of Thoracic Radiology Clinical Practice Guideline: Evaluation of Suspected Pulmonary Embolism In Pregnancy

Ann N. Leung, Todd M. Bull, Roman Jaeschke, Charles J. Lockwood, Phillip M. Boiselle, Lynne M. Hurwitz, Andra H. James, Laurence B. McCullough, Yusuf Menda, Michael J. Paidas, Henry D. Royal, Victor F. Tapson, Helen T. Winer-Muram, Frank A. Chervenak, Dianna D. Cody, Michael F. McNitt-Gray, Christopher D. Stave, and Brandi D. Tuttle, on behalf of the ATS/STR Committee on Pulmonary Embolism in Pregnancy

THIS OFFICIAL CLINICAL PRACTICE GUIDELINE OF THE AMERICAN THORACIC SOCIETY (ATS) AND THE SOCIETY OF THORACIC RADIOLOGY (STR) WAS APPROVED BY THE ATS BOARD OF DIRECTORS, MARCH 2011 AND BY THE STR, MAY 2011

THIS CLINICAL PRACTICE GUIDELINE HAS BEEN FORMALLY ENDORSED BY THE AMERICAN COLLEGE OF OBSTETRICIANS AND GYNECOLOGISTS

CONTENTS

Background: **Pulmonary embolism (PE) is a leading cause of maternal mortality in the developed world. Along with appropriate prophylaxis and therapy, prevention of death from PE in pregnancy requires a high index of clinical suspicion followed by a timely and accurate diagnostic approach.**
Methods: **To provide guidance on this important health issue, a multidisciplinary panel of major medical stakeholders was convened to develop evidence-based guidelines for evaluation of suspected pulmonary embolism in pregnancy using the Grades of Recommendation, Assessment, Development, and Evaluation (GRADE) system. In formulation of the recommended diagnostic algorithm, the important outcomes were defined to be diagnostic accuracy and diagnostic yield; the panel placed a high value on minimizing cumulative radiation dose when determining the recommended sequence of tests.**
Results: **Overall, the quality of the underlying evidence for all recommendations was rated as very low or low, with some of the evidence considered for recommendations extrapolated from studies of the general population. Despite the low-quality evidence, strong recommendations were made for three specific scenarios: performance of chest radiography (CXR) as the first radiation-associated procedure; use of lung scintigraphy as the preferred test in the setting of a normal CXR; and performance of computed tomographic pulmonary angiography (CTPA) rather than digital subtraction angiography (DSA) in a pregnant woman with a nondiagnostic ventilation–perfusion (V/Q) result.**
Discussion: **The recommendations presented in this guideline are based upon the currently available evidence; availability of new clinical research data and development and dissemination of new technologies will necessitate a revision and update.**

EXECUTIVE SUMMARY

The diagnostic algorithm for evaluation of suspected pulmonary embolism (PE) in pregnancy presented in this clinical practice guideline represents the collective efforts of a multidisciplinary panel of major medical stakeholders who developed these recommendations using the GRADE system (Figure 1). A major strength of these guidelines is the transparent evidence-based approach with explicit description of the values that influenced the recommendations; the main weaknesses are the low quality and very limited amount of direct evidence pertaining to diagnostic test accuracy and patient-important outcomes in the pregnant population. The diagnostic algorithm was formulated under the assumptions that patients are stable and all studies are equally available. In real-life situations where either the patient is unstable or some studies are not available on a timely basis, empiric initiation of therapy and/or alternate diagnostic strategies should be considered.

Recommendation 1. In pregnant women with suspected PE, we suggest that D-dimer not be used to exclude PE (weak recommendation, very-low-quality evidence).

Recommendation 2. In pregnant women with suspected PE and signs and symptoms of deep venous thrombosis (DVT), we suggest performing bilateral venous compression ultrasound (CUS) of lower extremities, followed by anticoagulation treatment if positive and by further testing if negative (weak recommendation, very-low-quality evidence).

Recommendation 3. In pregnant women with suspected PE and no signs and symptoms of DVT, we suggest performing studies of the pulmonary vasculature rather than CUS of the lower extremities (weak recommendation, very-low-quality evidence).

Recommendation 4. In pregnant women with suspected PE, we recommend a CXR as the first radiation-associated procedure

This document has an online supplement, which is accessible from this issue's table of contents at www.atsjournals.org

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Am J Respir Crit Care Med Vol 184. pp 1200–1208, 2011
DOI: 10.1164/rccm.201108-1575ST
Internet address: www.atsjournals.org

The NEW ENGLAND JOURNAL of MEDICINE

REVIEW ARTICLE

CURRENT CONCEPTS

Acute Pulmonary Embolism

Giancarlo Agnelli, M.D., and Cecilia Becattini, M.D., Ph.D.

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This article (10.1056/NEJMra0907731) was published on June 30, 2010, at NEJM.org.

N Engl J Med 2010;363:266-74.

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THE CLINICAL PRESENTATION OF ACUTE PULMONARY EMBOLISM RANGES from shock or sustained hypotension to mild dyspnea. Pulmonary embolism may even be asymptomatic and diagnosed by imaging procedures performed for other purposes. Depending on the clinical presentation, the case fatality rate for acute pulmonary embolism ranges from about 60% to less than 1%.[1] Anticoagulation is the foundation of therapy for pulmonary embolism. Depending on the estimated risk of an adverse outcome, admission to an intensive care unit and treatment with thrombolysis or catheter or surgical embolectomy may be required, but early hospital discharge or even home treatment may be considered. This review focuses on the optimal diagnostic strategy and management, according to the clinical presentation and estimated risk of an adverse outcome.

DIAGNOSIS

Pulmonary embolism should be suspected in all patients who present with new or worsening dyspnea, chest pain, or sustained hypotension without an alternative obvious cause. However, the diagnosis is confirmed by objective testing in only about 20% of patients.[2] This percentage is even lower in some countries, such as the United States, where the threshold to perform a workup for pulmonary embolism is particularly low. The diagnostic workup should be tailored to the severity of the clinical presentation on the basis of whether the patient's condition is hemodynamically stable or unstable.

In patients with hemodynamic stability, the diagnosis of pulmonary embolism should follow a sequential diagnostic workup consisting of clinical probability assessment, D-dimer testing, and (if necessary) multidetector computed tomography (CT) or ventilation–perfusion scanning (Fig. 1).[3,4] The use of the D-dimer assay is of limited value in patients with a high clinical probability of pulmonary embolism.[5] The specificity of an increased D-dimer level is reduced in patients with cancer, pregnant women, and hospitalized and elderly patients.[6] Most hospitalized patients should not undergo D-dimer testing when pulmonary embolism is suspected. The assessment of clinical probability on the basis of the clinical presentation and risk factors, made either implicitly according to clinical judgment or explicitly by means of clinical decision rules, classifies patients with suspected pulmonary embolism into several categories of pretest probability.[3,4] Clinical probability drives the diagnostic workup and facilitates the interpretation of diagnostic tests.

In hemodynamically stable patients with a low or intermediate clinical probability of pulmonary embolism, normal results on D-dimer testing, as measured by a sensitive enzyme-linked immunosorbent assay, avoids unnecessary further investigation. In such patients, if anticoagulant treatment is not given, the estimated 3-month risk of thromboembolism is 0.14% (95% confidence interval [CI], 0.05 to 0.41).[3] Among patients with suspected pulmonary embolism who have normal D-dimer results,

The New England Journal of Medicine
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Question 2 (12 marks)

An 8 month old presents with 4/24 of distress. You make a diagnosis of acute, suppurative otitis media.

a. List four (4) indications for immediate antibiotic treatment for this patient. (4 marks)
   - **Indigenous**
   - **Immunosuppression**
   - **Systemic features**
   - **Tympanic membrane rupture**
   - **Where follow up is difficult**
     NB: other indications: is no improvement in 6-24/12 after 24/24, all < 6/12 age

b. Other than tympanic membrane perforation, list four (4) potential complications of acute, suppurative otitis media. (4 marks)
   - **Mastoiditis**
   - **Intracranial abscess**
   - **Meningitis**
   - **Lateral sinus thrombosis**
   - **Facial n paralysis**
   - **Petrous apicitis (Gradenigo's syndrome)**

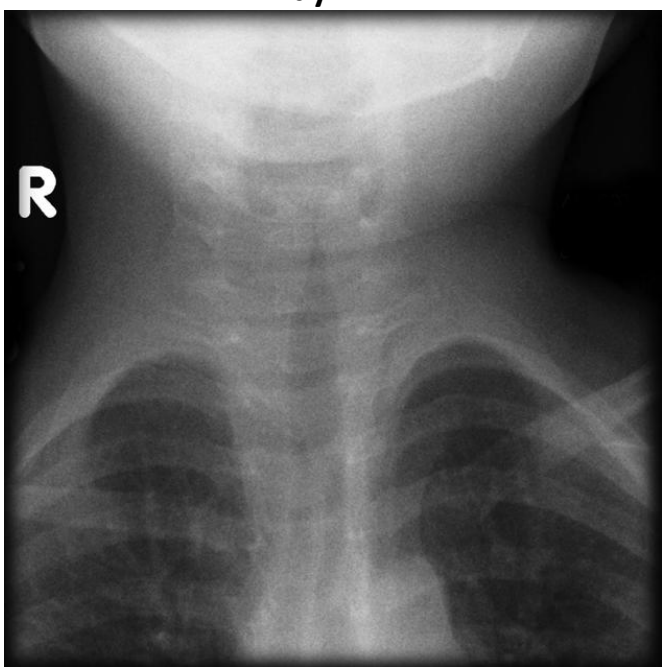
c. List four (4) actions that you would take in the setting of suppurative, tympanic membrane perforation. (4 marks)
   - **Exclude mastoiditis by CT if suggested by clinical examination**
   - **Rx with oral abs**
   - **Refer for ENT review ~ 3/12** ***(to allow repair if unhealed)***
   - **Advice:**
     - **Keep ear dry until perforation healed/ ear plugs when showering**
     - **Do not use ototoxic ear drops eg gentamicin**

Question 3 (12 marks)

A 3 year old boy presents with stridor.

Xray 1

Xray 2



a. What is the diagnosis based on these xrays? (1 mark)
   - **Croup**

b. State three (3) abnormal findings shown in these Xrays, that support this diagnosis. (3 marks)
   - **Xray 1 - (lateral) distension of hypopharynx**
   - **Xray 1 - (lateral) haziness of subglottic trachea**
   - **Xray 1 - (lateral) loss of normal lordosis of spine** (patient attempts to keep airway open)
   - **Xray 2- A/P "steeple" / "winebottle" sign**

c. State two (2) important relevant negative finding on this xray. (2 mark)
   - **Normal epiglottis**
   - **No foreign body seen**

d. What is the role of steroids in this condition? State three (3) points in your answer. (3 marks)
   - **Use in all severities**
   - **Evidence of effectiveness < 1/24**
   - **Single dose required**
   - **Oral / nebulised / IV- oral easiest to administer**

e. List three (3) specific preparations for this condition, that you would make prior to intubation of this patient. (3 marks)
   - **Croup specific ETT tubes available/ tubes smaller than predicted by size**
   - **Anaesthetist to perform**
   - **Gaseous induction**
   - **Surgical airway backup planned**

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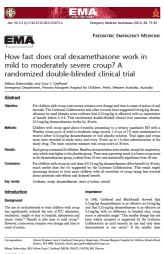
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How fast does oral dexamethasone work in mild to moderately severe croup? A randomized double-blinded clinical trial

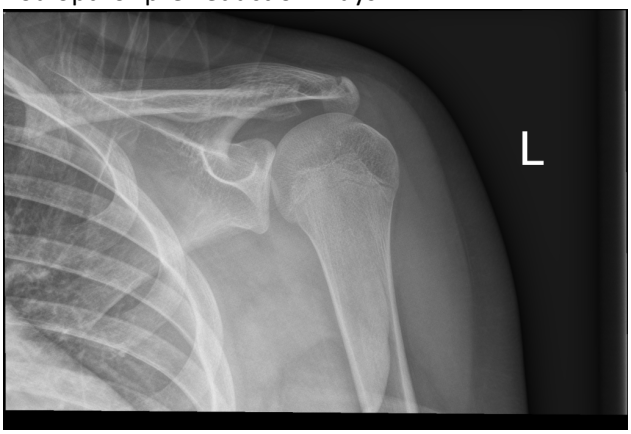
Question 4 (12 marks)

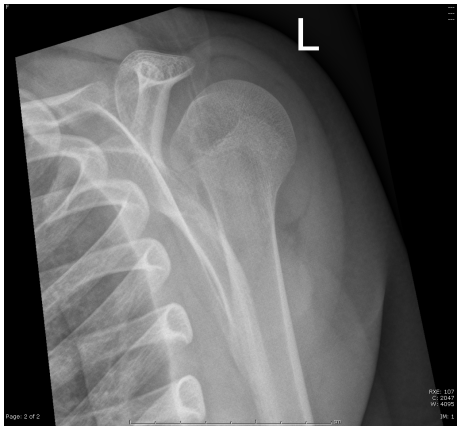
It is 2100 hrs in your urban district ED. An 18 year old male presents with left shoulder pain, sustained in an accidental fall less than 1 hour ago. After complete history and examination, he has an isolated shoulder injury. You suspect a shoulder dislocation.

a. Other than confirmation of the dislocation, state two (2) pros of pre-reduction x-rays in this setting. (2 marks)
   - **Documents associated fractures - ie not created by reduction**
   - **Documents associated fractures - may require orthopaedic management in theatre**
   - **Position of head may aid in choice of reduction technique**

b. State three (3) cons of pre-reduction x-rays in this setting. (3 marks)
   - **Low yield for significant other injuries (that may impede relocation)**
   - **Delay to reduction**
   - **Associated # may be better evaluated with the shoulder enlocated**
   - **Greater tuberosity fractures usually reduce with shoulder reduction (do not require modification of technique)**

You opt for pre-reduction xrays.





c. State the diagnosis based on these xrays. (1 mark)
   - **Posterior dislocation of L gleno-humeral joint/ shoulder**

d. State one (1) commonly associated complication of this diagnosis. (1 mark)
   - **Reverse Hill- Sachs deformity / defect in the anteriomedial head of the humerus**

Following your specific treatment, you deem that the patient may be suitable for discharge.

e. State five (5) considerations prior to your discharge of this patient. (5 marks)
   - **No complications of sedation**
   - **Recovery from sedation**
   - **Assess Neuro-Vascular status of limb b/f discharge**
   - **Adequate analgesia**
   - **Ensure & provide adequate splinting**
   - **Rehabilitation advice- including return to normal function and recurrence prevention/ Advice re shoulder movement**
   - **Follow-up: ortho, Physio follow up < 1/52**
   - **Social situation/ transport**
   - **Intoxication**
   - **Admission to SSU**
   - **Provide printed advice, esp return to function and avoidance of activities**
   - **Medical cert**

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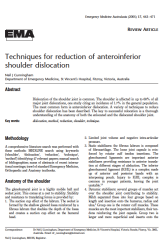

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Review Article

Techniques for reduction of anteroinferior shoulder dislocation

Neil Cunningham
Department of Emergency Medicine, St Vincent's Hospital, Fitzroy, Victoria, Australia

Abstract

Abstract text

Key words: dislocation, method, reduction, shoulder, technique

Methodology

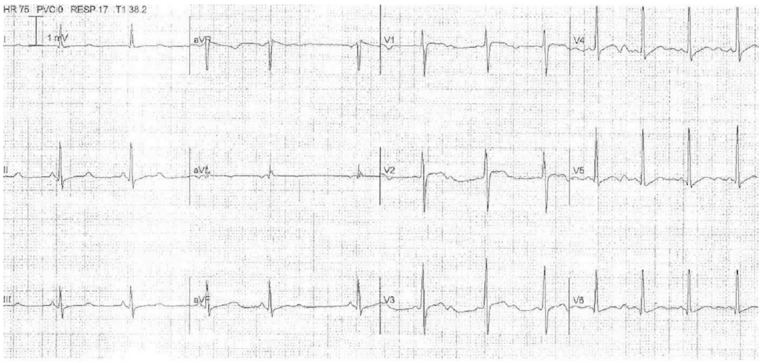
Methodology text

Anatomy of the shoulder

Anatomy text

Question 5 (12 marks)

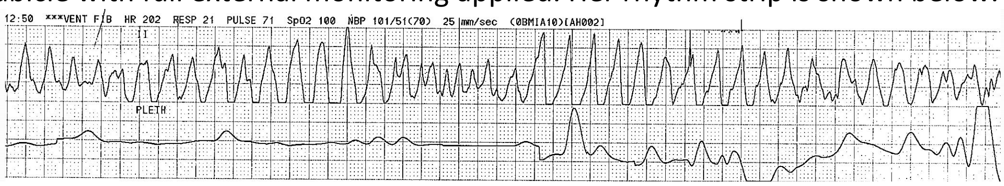
A 26 year old woman presents with an unconscious collapse.
She appears unwell and significantly underweight.
Her relevant vital signs are: GCS 15 BP 105/50mm Hg RR 20 bpm Temp 36.8°C



a. State two (2) abnormal ECG findings.(2 marks)
   - **QT prolongation** (esp inferior leads)
   - **U waves**

b. List four (4) medications that may lead to these ECG changes. (4 marks)
   - **Type I/ III antiarrhythmics**
   - **Phenothiazines**
   - **TCA**
   - **Carbemazepine**
   - **Lithium**
   - **Organosphosphates**
   - **Cisapride**
   - **Amisulpride**
   - **Terfenadine (esp when used with erythromycin/ fluconazole)**
   - **Quinolones**

Whilst you are assessing the patient, she loses consciousness and loses her output. She is moved to a resuscitation cubicle with full external monitoring applied. Her rhythm strip is shown below.



c. List six (6) immediate treatments that may be indicated for this patient. (6 marks)
   - **DC shock Biphasic 200J**
   - **IV magnesium**
   - **IV potassium**
   - **IV calcium**
   - **Overdrive pacing**
   - **Atropine** *(organophosphates as cause)*
   - **IV Betablockers** *(for congenital)*
   - **IV NaHCO3** *(Na CB toxicity)*

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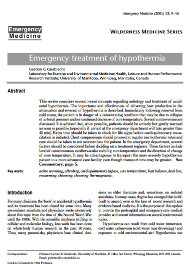
Emergency Medicine
Wilderness Medicine Series
Emergency treatment of hypothermia

Question 6 (12 marks)

A 67 year-old woman who lives independently has been brought in after being found by her daughter on the floor of her shower. It appears that she has been there all night. She was well the day before.
Initial observations: BP 70/40 RR 6/min Temp 27° C (aural) SaO_2 95% GCS 7/15(E-1 V-2 M-4)

a. List four (4) positive ECG findings that you may expect at this stage. (4 marks)
   - **Sinus bradycardia**
   - **2nd degree HB**
   - **3rd degree HB**
   - **Prolonged PR**
   - **Prolonged QRS**
   - **Prolonged QT**
   - **STE/STD**
   - **Osborn waves**
   - **Atrial tachycardia**
   - **AF with slow AV response**

b. List four (4) methods that you would use to rewarm this patient. (4 marks)
   - **Dry patient**
   - **Clothe and cover patient**
   - **External:**
     - **Forced-air re-warming blanket, warmed mattress if available**
     - **Warm ambient temperature: heating**
   - **Internal:**
     - **Warmed IV fluids. Warm saline (up to 40 deg) resuscitation – 20 ml/kg +repeat** *(hypotensive initially + likely to vasodilate further as warms)*
     - **Warmed humidified air / O_2 +/- ETT**
     - **Warmed fluid lavage (IDC - feasible in ED, NGT, peritoneal - ?practicality)**
   - **Cardiopulmonary bypass**

c. State two (2) pros for intubating this patient. (2 marks)
   - **Facilitate warming and humidification of inspired air**
   - **Optimise oxygenation**
   - **Optimise ventilation** *(hypoventilation potentially leading to hypercarbia and abnormal respiratory status)*
   - **Careful intubation with minimal movement** *(C-spine protection with immobilisation)* **may well have minimal risk**

d. State two (2) cons for intubating this patient. (2 marks)
   - **May destabilise patient eg arrhythmia**
   - **warming may rapidly improve low GCS due to hypothermia making intubation unnecessary**
   - **Patients oxygenation appears adequate and if hypoventilation (CO2) an issue then can be managed simply with bag-mask ventilation**
   - **Airway patency can be maintained with simple non-invasive measures, close observation, immediate suctioning**

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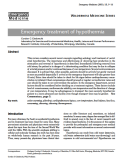

Question 7 (12 marks)

A 67 year-old man presents to the ED with 12 hours of severe upper abdominal pain, fever, nausea and vomiting. He appears jaundiced. Initial assessment: He is exquisitely tender and guarded in his epigastrium and right upper quadrant.
His vitals signs are: HR 90 bpm BP 110/60 mmHg RR 22 bpm Temperature 38.2 °C

a. Other than pancreatitis, list three (3) likely differential diagnoses. (3 marks)
   - **Acute cholecystitis**
   - **Acute hepatitis**
   - **Acute cholangitis**
   - **Perf GU/DU**

Test type	Value	Units	Reference range
Na	135	mmol/L	135 – 145
K	3.9	mmol/L	3.5 – 5.0
Cl	100	mmol/L	95 – 110
HCO3	27	mmol/L	20 – 31
Urea	4.1	mmol/L	2.7 – 7.8
Creatinine	62	mcmol/L	50 – 100
Anion gap	8	mmol/L	5 – 15
Total protein	76	g/L	60 – 80
Albumin	44	g/L	35 – 50
ALP	577	IU/L	40 – 115
ALT	972	IU/L	<65
AST	875	IU/L	< 65
GGT	226	IU/L	<55
LDH	625	IU/L	<280
Bilirubin TOTAL	125	mcmol/L	<25
Lipase	8523	IU/L	8 – 78

b. State three (3) key interpretation facts with respect to these results. (3 marks)
   - **Grossly deranged LFT with evidence of obstruction**
   - **Markedly elevated lipase = c/w acute gallstone pancreatitis/ CBD stone**
   - **No effect on renal function- Normal renal function and bicarbonate.**
   - **No significant associated acidosis**

c. List four (4) factors of this patient's presentations that predict severe disease. (4 marks)
   - **Age > 55**
   - **AST > 250**
   - **LDH > 350**
   - **Bili > 85 / jaundiced** *(ERCP indicated within 72/24)*

Predictors for severity of disease
- **Aetiology**
- **Patient factors:**
  - Age
  - co-morbidities
- **Presence of organ failure**
- **Radiological** (contrast enhanced CT): local Cx e.g. necrosis, abscess, pseudocyst
- **Location** – Facilities, staff, expertise
- **Scoring systems**
  - APACHE II score ≥ 8 (not all physiological for this are known either)
  - Ranson's Criteria (5 on Ax):

At admission:
- **Age in years > 55 years**
- **White blood cell count > 16000 cells/mm^3**
- **Blood glucose > 10 mmol/L (> 200 mg/dL)**
- **Serum AST > 250 IU/L**
- **Serum LDH > 350 IU/L**

Within 48 hours:
- **Serum calcium < 2.0 mmol/L (< 8.0 mg/dL)**
- **Hematocrit fall > 10%**
- **Oxygen (hypoxemia PaO_2 < 60 mmHg)**
- **BUN increased by 1.8 or more mmol/L (5 or more mg/dL) after IV fluid hydration**
- **Base deficit (negative base excess) > 4 mEq/L**
- **Sequestration of fluids > 6 L)**

d. List two (2) limitations for the use of Ranson's criteria. (2 marks)
   - **Does not alter therapy**
   - **Poorly** *(only 50%)* **predictive of complications**
   - **Not relevant for most** *(80%)* **who have benign course**
   - **Clinical/ non invasive markers are as effective in prognosis prediction**

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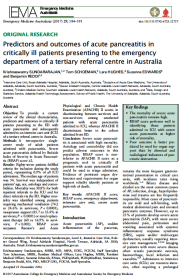
EMA Emergency Medicine Australasia

ORIGINAL RESEARCH

Predictors and outcomes of acute pancreatitis in critically ill patients presenting to the emergency department of a tertiary referral centre in Australia

Question 8 (12 marks)

You are the supervising emergency physician in a suburban emergency department. The Triage Nurse brings to your attention a distressed 16 year old girl he has just triaged. She is requesting the"morning after pill". You attend the patient. She reports that she was sexually assaulted the previous day by a male acquaintance.

a. List six (6) historical factors that are of key importance in your risk assessment. (6 marks)
- **Specifics of assault- genital/ rectal/ perineal/ other**
- **ID exposure- STD prophylaxis/ body fluid exposure**
- **Pregnancy prevention methods**
- **Other trauma-** *Blunt strangulation/ STI/ #/ CHI*
- **Associated drug use**
- **Psychological development**
- **Development delay**
- **Psychiatric Hx**
- **Social circumstances** *(adolescent at risk, ? independent)*

b. List four (4) issues with respect to emergency contraception for this patient. (4 marks)
- **Risk assessment** *(~ 5%)* **- depends on time of cycle**
- **CI if PHx VTE**
- **Earlier the better/ best if < 72/24**
- **Antiemetics- forewarning/ advice/ prophylaxis**
- **Counselling re risk** *(higher rate of failure with high BMI - wt > 80 kg)*
- **Follow up plan- pregnancy test and counselling**

c. List two (2) circumstances under which you would prescribe sexually transmitted infection prophylaxis immediately for this patient. (2 marks)
- **Multiple offenders**
- **Genital injury** *(higher likelihood of blood borne virus exposure)*
- **Offenders from African decent** *(HIV endemic areas)*
- **Failure to follow up risk high**
- **Male known to have STI** *(either documented or stated)*

NB: STI prophylaxis is not routinely offered in other circumstances.

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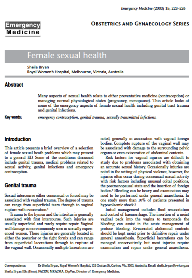
Emergency Medicine (2003) 15, 223–226

Emergency Medicine

OBSTETRICS AND GYNAECOLOGY SERIES

Female sexual health

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Abstract

Many aspects of sexual health relate to either preventative medicine (contraception) or managing normal physiological states (pregnancy, menopause). This article looks at some of the emergency aspects of female sexual health including genital tract trauma and genital infections.

Key words: *emergency contraception, genital trauma, sexually transmitted infections.*

Introduction

This article presents a brief overview of a selection of female sexual heath problems which may present to a general ED. Some of the conditions discussed include genital trauma, medical problems related to sexual activity, genital infections and emergency contraception.

Genital trauma

Sexual intercourse either consensual or forced may be associated with vaginal trauma. The degree of trauma can range from superficial tears through to vaginal rupture with evisceration.[1]

Trauma to the hymen and the introitus is generally associated with first intercourse. Such injuries are usually superficial and rarely require repair. Vaginal wall damage is more commonly seen in sexually experienced women. These injuries are generally located in either the posterior or the right fornix and can range from superficial lacerations through to rupture of the vaginal wall. Occasionally multiple lacerations are noted, generally in association with vaginal foreign bodies. Complete rupture of the vaginal wall may be associated with damage to the surrounding pelvic organs or even evisceration of abdominal contents.

Risk factors for vaginal injuries are difficult to study due to problems associated with obtaining an accurate sexual history. Occasionally injuries are noted in the setting of physical violence, however, the injuries often occur during consensual sexual activity with risk factors including unusual coital positions, the postmenopausal state and the insertion of foreign bodies.[2] Bleeding can be heavy and examination may need to be performed under general anaesthesia. In one study more than 10% of patients presented in hypovolaemic shock.[2]

Initial management includes fluid resuscitation and control of haemorrhage. The insertion of a moist vaginal pack into the vagina to tamponade the bleeding can assist in the acute management of profuse bleeding. Eviscerated abdominal contents should be kept moist prior to definitive repair under general anaesthesia. Superficial lacerations can be managed conservatively but most injuries require examination and repair under general anaesthesia.

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This resource is produced for the use of University Hospital, Geelong Emergency staff for preparation for the Emergency Medicine Fellowship written exam. All care has been taken to ensure accurate and up to date content. Please contact me with any suggestions, concerns or questions.
Dr Tom Reade (Staff Specialist, University Hospital, Geelong Emergency Department)
Email: tomre@barwonhealth.org.au November 2017

Question 9 (18 marks)

A 35 year old woman is triaged into a monitored cubicle in your ED after taking an overdose of her mother's 'heart tablets'. It is confirmed that she has taken 15 x 240mg sustained release verapamil, 2 hours ago.

a. List three (3) historical factors that are of key importance. (3 marks)
   - **Coingestants / access to other cardiotoxic medications**
   - **Cardiac comorbidities**
   - **Suicidality- note/ how identified/ current attitude towards OD**

b. What is your risk assessment of this overdose? State three (3) points in your answer. (3 marks)
   - **Life threatening toxicity expected** *(> 10 tablets)*
   - **Onset of toxicity likely to be delayed** *(up to 16/24)*
   - **Toxicity may be ↓ with aggressive decontamination (AC and WBI)**
   - **Toxicity ↑ with coingestion of other cardiotoxic drugs**
   - **Toxicity ↑ with coexistant cardiac disease**

c. What is the mainstay of therapy for this patient? (1 mark)
   - **High dose insulin therapy**

d. What is the indication for the commencement of this therapy? (1 mark)
   - **As soon as significant toxicity is detected (↓BP resistant to fluids/ cardiac dysrhythmias)**

e. What other therapy is effective as an antidote? (1 mark)
   - **IV Calcium** (does not provide definitive Rx, but can produce a temporary ↑HR & BP)

Soon after your review, her observations are: BP 120/40 mmHg Pulse rate 80 /min RR 10/min
O2 sats 97% RA GCS 9 (E3, V3, M3)

f. What is your risk assessment now? State two (2) points in your answer. (2 marks)
   - **No suggestion of CCB toxicity based on haemodynamics**
   - **Coingestant likely- ↓ GCS** *(not part of the spectrum of CCB toxicity)*
   - **CCB toxicity will be more significant if coingestant also cardiotoxic**

g. What is the role of charcoal for this patient? State three (3) points in your answer. (3 marks)
   - **Should have been initiated on arrival if GCS was 15 & was cooperative**
   - **Is effective < 4/24 for XR** *(< 1/24 if SR)*
   - **Pt should now be intubated and charcoal administered post ETT**

h. List three (3) other treatment modalities that may be utilised in the event of failure to respond to the treatments already stated. (3 marks)
   - **WBI** *(should have been commenced with the above Rx)*
   - **Ventricular pacing** *(capture often difficult to achieve, may not ↑ perfusion)*
   - **Cardiopulmonary bypass**
   - **ECMO**
   - **IABP**

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