Metabolic Syndrome Presenting as Abdominal Pain

Mohammed Y. Al-Dossary, Manal A. Hasan, Abdulaziz H. Al-Dhafeeri, Noura M. Al-Nafea
Department of Internal Medicine, King Fahd Hospital of the University, University of Dammam, Dammam, Kingdom of Saudi Arabia

Correspondence: Dr. Mohammed Yousef Al-Dossary, College of Medicine, King Fahd Hospital of the University, University of Dammam, P. O. Box: 4601, Al-Khobar 31952, Kingdom of Saudi Arabia. E-mail: Dr.hamodzzz@gmail.com

ABSTRACT

Metabolic syndrome represents a sum of risk factors that lead to the occurrence of cardiovascular and cerebrovascular events. The early detection of metabolic syndrome is extremely important in adults who are at risk. Although the physiopathological mechanisms of the metabolic syndrome are not yet clear, insulin resistance plays a key role that could explain the development of type 2 diabetes mellitus in untreated metabolic syndrome patients. Here, we present the case of a 26-year-old male who was diagnosed with metabolic syndrome and severe hypertriglyceridemia after presenting with abdominal pain. Although hypertriglyceridemia and hyperglycemia are the most common predictors of metabolic syndrome, clinicians need to be vigilant for unexpected presentations in patients at risk for metabolic syndrome. This case sheds light on the importance of early detection.

Key words: Hypertriglyceridemia, metabolic syndrome, type 2 diabetes mellitus

INTRODUCTION

The metabolic syndrome in adults has been defined as a complex of inter-related risk factors for cardiovascular disease and type 2 diabetes mellitus (T2DM). The worldwide prevalence of metabolic syndrome ranges from <10% to as high as 48% depending on the population studied. The prevalence of metabolic syndrome in the Kingdom of Saudi Arabia is decreasing, while dyslipidemia remains high, affecting almost 90% of middle-aged Saudi males. Among metabolic syndrome components, low-density lipoprotein (HDL)-hypertriglyceridemia and cholesterol were the most prevalent in one study, affecting 88.6% and 34% of the subjects, respectively.

The National Cholesterol Education Program Adult Treatment Panel III (NCEP/ATP III) has defined metabolic syndrome by the presence of at least three of the following components: abdominal obesity (waist circumference >40 inches in men and >34 inches in women).

Access this article online

Quick Response Code: www.sjmms.net
DOI: 10.4103/1658-631X.204856

How to cite this article: Al-Dossary MY, Hasan MA, Al-Dhafeeri AH, Al-Nafea NM. Metabolic syndrome presenting as abdominal pain. Saudi J Med Med Sci 2017;5:172-4.
in women); hypertriglyceridemia (triglyceride level ≥150 mg/dL [1.69 mmol/L]); low HDL-cholesterol level (<40 mg/dL [1.04 mmol/L] in men and <50 mg/dL [1.29 mmol/L] in women); high blood pressure (≥130/85 mmHg) and high fasting glucose (≥110 mg/dL [6.1 mmol/L]).[4] Here, we report on a patient who met all five components identified by NCEP/ATP III for the definition of metabolic syndrome and who presented with abdominal pain, a complaint not usually suggestive of metabolic syndrome as a comorbidity or cause.

**CASE REPORT**

A 26-year-old Saudi male with no previous significant medical history presented to the emergency department with a 1-week history of abdominal pain. It was graded as 7 out of 10 and unrelated to food intake. There was no associated history of vomiting or altered bowel habits. There was history of polyuria and polydipsia, but no history of polyphagia, no noticed weight changes and no history to suggest thyroid dysfunction. His family history revealed that his mother suffered from T2DM and both his parents suffered from hypertension without any significant cardiovascular events. His physical examination revealed the following: height, 169 cm; weight, 88.8 kg; body mass index, 31 kg/m²; waist circumference, 42.8 inches; hip circumference, 43.5 inches and neck circumference, 17 inches. The rest of his systemic examination was unremarkable, including a normal fundus examination and normal neurological testing. Investigations revealed milky blood [Figure 1]. He had a hemoglobin value of 15.5 g/dL; total leukocyte count of 6.7 k/uL; platelet count of 263 k/uL; random plasma glucose level, 698 mg/dL; blood urea, 8.0 mg/dL and serum creatinine 1.0 mg/dL. The lipid profile was abnormal with the following values: serum cholesterol, 334 mg/dL; serum triglyceride, 3872 mg/dL; serum HDL, 27 mg/dL and serum low-density lipoprotein, 52 mg/dL. Amylase and lipase were normal as was the liver chemistry. Routine urine examination revealed yellow-colored urine, not turbid and neutral (pH of 6.0) with trace proteinuria. Glycated hemoglobin level (hemoglobin A1C) was 12.1%. Radiological investigations were normal. The patient was given adequate hydration, analgesics, insulin and the lipid-lowering agent fenofibrate, after which he was discharged and advised regarding follow-up care. This patient met the NCEP/ATP III-defined criteria for metabolic syndrome. He also fit the diagnostic criteria for T2DM. Despite his very high triglyceride level, he showed no evidence of pancreatitis or cutaneous involvement that is characteristic of dyslipidemia.

**DISCUSSION**

Various criteria have been used to define metabolic syndrome; we describe the widely accepted NCEP/ATP III consensus definition.[4] Early detection and management play a key role in the management of metabolic syndrome to avoid future complications, given the increasing burden of morbidity and mortality resulting from components of the disease.[5] The American College of Cardiology/American Heart Association Cholesterol Guidelines for arteriosclerotic cardiovascular disease risk reduction in adults highlight the importance of dyslipidemia management in patients with T2DM.[6] Lipid-lowering agent fenofibrate is considered when the triglyceride level is >500 mg/dL,[6] it affects the actions of enzymes in the liver, enabling the liver to absorb more fatty acids, thus reducing production of triglycerides, increasing the production of HDL.[6]

Weight reduction and glycemic control are the important parts of metabolic syndrome management; a realistic goal is to reduce the body weight by 7–10%. Weight reduction has been shown to improve glycemic control by increasing insulin sensitivity and glucose uptake and diminishing hepatic glucose output.[8] The American Diabetes Association and Joint National Committee (Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure) recommend a target blood pressure goal of <130/80 mmHg for patients with T2DM.[9] Angiotensin-converting enzyme inhibitors are the preferred therapeutic agents because they can prevent microvascular and macrovascular complications.[10]
CONCLUSION

Metabolic syndrome is common, and clinicians need to be vigilant for unexpected presentations in patients at risk. Obesity and a lack of physical exercise are closely related to metabolic syndrome. This case report highlights the methods that should be adopted in the management of patients with metabolic syndrome.

Financial support and sponsorship
Nil.

Conflicts of interest
There are no conflicts of interest.

REFERENCES

1. Alberti KG, Zimmet P, Shaw J; IDF Epidemiology Task Force Consensus Group. The metabolic syndrome – A new worldwide definition. Lancet 2005;366:1059-62.
2. Biino G, Concas MP, Cena H, Parracciani D, Vaccargiu S, Cosso M, et al. Dissecting metabolic syndrome components: Data from an epidemiologic survey in a genetic isolate. Springerplus 2015;4:324.
3. Al-Daghri NM, Al-Attas OS, Alokail MS, Alkharfy KM, Sabico SL, Chrousos GP. Decreasing prevalence of the full metabolic syndrome but a persistently high prevalence of dyslipidemia among adult Arabs. PLoS One 2010;5:e12159.
4. National Cholesterol Education Program (NCEP) Expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults (Adult Treatment Panel III). Third Report of the National Cholesterol Education Program (NCEP) Expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults (Adult Treatment Panel III) final report. Circulation 2002;106:3143-421.
5. International Diabetes Federation. Global Diabetes Scorecard; 2015. Available from: http://www.idf.org/global-diabetes-scorecard. [Last accessed on 2015 Oct 22].
6. Stone NJ, Robinson JG, Lichtenstein AH, Bairey Merz CN, Blum CB, Eckel RH, et al. 2013 ACC/AHA guideline on the treatment of blood cholesterol to reduce atherosclerotic cardiovascular risk in adults: A report of the American College of Cardiology/American Heart Association task force on practice guidelines. J Am Coll Cardiol 2014;63(25 Pt B):2889-934.
7. Bloomgarden ZT. American College of Endocrinology pre-diabetes consensus conference: Part two. Diabetes Care 2008;31:2222-9.
8. Markovic TP, Jenkins AB, Campbell LV, Furler SM, Kraegen EW, Chisholm DJ. The determinants of glycemic responses to diet restriction and weight loss in obesity and NIDDM. Diabetes Care 1998;21:687-94.
9. James PA, Oparil S, Carter BL, Cushman WC, Dennison-Himmelfarb C, Handler J, et al. 2014 evidence-based guideline for the management of high blood pressure in adults: Report from the panel members appointed to the Eighth Joint National Committee (JNC 8). JAMA 2014;311(5):517-55.
10. Jarred G, Kennedy RL. Therapeutic perspective: Starting an angiotensin-converting enzyme inhibitor or angiotensin II receptor blocker in a diabetic patient. Ther Adv Endocrinol Metab 2010;1:23-8.