About this Section
Each year, Minnesota Medicine highlights research and clinical work undertaken by Minnesota medical students, residents and fellows. The goal is to not only showcase the good work these medical trainees are doing but also to inform readers about pertinent topics.

This year, 22 trainees submitted brief papers describing original research or interesting cases. These were evaluated with regard to these and other questions: Did the authors provide an adequate description of the case or the problem? Was their methodology sound? Did they conduct an adequate review of relevant scientific literature? Do the findings or does the case have implications for practice or further research? The reviewers selected the following submissions for publication in this issue. Others will be published in future issues.

We thank both those who submitted their work and our reviewers Peter Kernahan, MD, PhD; Barb Elliott, PhD; Barbara Yawn, MD; and Angie Buffington, PhD.

“It Took My Breath Away”
BY KAY L. INGRAHAM, MD, AND JONATHAN D. KIRSCH, MD, UNIVERSITY OF MINNESOTA INTERNAL MEDICINE DEPARTMENT

A 49-year-old previously healthy woman presented with one day of progressively worsening right-side body pain and shortness of breath. She indicated that the pain started while she was in bed the previous morning and it radiated from her right upper quadrant to her chest. It worsened with inspiration. She denied having a fever or leg swelling and having had any recent surgeries, hospitalizations or travels. She had no personal or family history of heart disease or blood clots and did not smoke tobacco or take oral contraceptives. The patient had been told she had uterine fibroids several months earlier and reported experiencing heavy menstrual periods for years.

On exam, she was tachycardic and tachypneic. Her abdomen was nontender to palpation, although she had pain in her right upper quadrant with inspiration. She had no lower extremity edema.

Because of high suspicion for venous thromboembolic disease and widespread pain, a CT scan of her chest, abdomen and pelvis was ordered. It revealed bilateral pulmonary emboli and a right-sided pleural effusion. The abdominal and pelvic CT scan revealed a 20.1 cm x 19.4 cm x 12.7 cm uterine myoma compressing the inferior vena cava and common iliac veins (Figure). Lower extremity venous Doppler ultrasound was negative for deep vein thrombosis. A complete hypercoagulability workup was also negative.

The patient was diagnosed with venous thromboembolism caused by mass effect from her large uterine myomas. She was treated with enoxaparin and scheduled for a total hysterectomy.

Discussion
Venous thromboembolism is a common problem encountered by internists. It is a result of a culmination of Virchow’s triad—venous stasis, vascular endothelial injury and a hypercoaguable state. Venous thromboemboli are usually classified as being caused by acquired risk factors, inherited thrombophilias or a combination of these. Acquired risk factors for venous thromboembolism include the following: immobility, hospitalization, surgery, oral contraceptive use, antiphospholipid antibody syndrome and malignancy. Inherited thrombophilias include Factor V Leiden, prothrombin, protein C and S deficiencies as well as antithrombin deficiency.

When exploring the potential causes of a venous thromboembolism, it is important to take a thorough history before reporting one as being unprovoked. The label of “unprovoked” can lead to longer anticoagulation and further unnecessary diagnostic workup. As uterine myomas are very common in women over the age of 40, it is important to recognize an enlarged uterus as a potential cause for venous thromboembolism. Definitive treatment for a venous thromboembolism in this case is a total hysterectomy.

CT of the abdomen/pelvis revealed a 20.1 cm x 19.4 cm x 12.7 cm uterine myoma (gold circle) compressing the inferior vena cava (gold arrow) and common iliac veins.