Rumpel-Leede Phenomenon: A Case Report

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About the Authors

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A 72-year-old woman presented with a one-week history of fever, non-productive cough, and three unwitnessed syncopal episodes, with no other associated symptoms. She had poor recollection of the episodes, but denied urinary/fecal incontinence, tongue biting, numbness, parasthesias, or weakness.

Her medical history was significant for hypertension, dyslipidemia, leg ulcers, psoriasis, stress incontinence, and gastroesophageal reflux disease. She did not have diabetes, coronary artery disease, or peripheral vascular disease. Her medications included Atorvastatin, Enalapril, Hydrochlorothiazide, Lansoprazole, and Calcium. She did not smoke or drink.

On examination, her vital signs were stable and she was afebrile. Chest auscultation revealed crackles in the right lower base. She developed an erythematous, lacy sharply demarcated rash on her left hand that lasted for 3–4 hours after her blood pressure was taken on the same arm (Figures 1 and 2). Blood tests were unremarkable and included glucose, complete blood count, electrolytes, urea, creatinine, liver function tests, and coagulation studies.

Discussion

The case illustrates a well-demarcated, non-blanching erythematous rash arising after BP measurement. This is presumed to be the result of mechanical trauma to the dermal capillaries from non-invasive blood pressure monitoring. Although our patient was not diabetic, this phenomenon has been most often described in patients with underlying diabetic retinopathy and after non-invasive ambulatory blood pressure monitoring.^{1,2} In one study, 68% of 72 diabetic patients compared to 35% age- and sex-matched non-diabetic control subjects had a positive Rumpel-Leede sign.³ High prevalence of hypertension and increased capillary fragility in diabetic patients may predispose them to Rumpel-Leede phenomenon, which is positively correlated with duration of diabetes and the presence of microvascular complications of diabetes, including neuropathy, retinopathy, and nephropathy.⁴

Rumpel-Leede phenomenon is not specific to diabetes and can occur with other causes of increased capillary fragility, such as Ehlers-Danlos syndrome and thrombocytopenia.^{5,6} The exact mechanism is not known, but increased capillary fragility in the presence of high intravascular pressure created by the sphygmomanometer cuff would be a plausible mechanism. In our nondiabetic patient, the likely cause of the Rumpel-Leede sign was the fragility of her small blood vessels as skin and blood vessels are more fragile in old age. The prominent demarcation of the Rumpel-Leede sign at the wrist rather

than forearm (well below the area of the BP cuff, where one might expect to see it) was likely due to the tourniquet causing intravascular pressure, greatest in the distal, dependent areas.

There were no clinical implications caused by this condition in our particular patient. However, a lack of awareness of this condition and its causes can lead to unnecessary investigations.

Ecchymosis of the hand

References

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