

• **Name:** Shruti Chaturvedi, MBBS, MSCI

• **Affiliation/Current Position:**

Associate Professor of Medicine, Division of Hematology, Johns Hopkins University
School of Medicine, Baltimore MD

• **Country:** United States

• **ICKSH2022 Presentation Title:** Thrombotic Thrombocytopenic Purpura in 2022: Novel Therapies and Focus on Long Term Outcomes

• **Educational Background:**

Doctoral/graduate

2010 M.B.B.S., University of Delhi (Maulana Azad Medical College), New Delhi, India

2017 Master of Science in Clinical Investigation (MSCI), Vanderbilt University, Nashville, TN

Postdoctoral

2011-2012 Intern, Internal Medicine, Cleveland Clinic Foundation, Cleveland, OH

2012-2014 Resident, Internal Medicine, Cleveland Clinic Foundation, Cleveland, OH

2012 Clinical Scholar Program, Cleveland Clinic Foundation, Cleveland, OH

2014-2017 Fellowship, Hematology and Oncology, Vanderbilt University, Nashville, TN

• **Professional Experiences:**

2009-2010 Intern, Maulana Azad Medical College and Associated Hospitals, New Delhi, India

2011-2014 Internal Medicine House Staff, Cleveland Clinic, Cleveland, OH

2014-2017 Fellow, Hematology and Medical Oncology, Vanderbilt University Medical Center, Nashville, TN

2017-2021 Assistant Professor, Division of Hematology, Department of Medicine, Johns Hopkins University School of Medicine

2021-Present Associate Professor, Division of Hematology, Department of Medicine, Johns Hopkins University School of Medicine

• **Professional Organizations**

2011- American College of Physicians

Present

2012- American Society of Hematology

present

- 2012- Present Hemostasis and Thrombosis Research Society
- 2013- Present International Society on Thrombosis and Hemostasis
- 2014- Present American Society of Clinical Oncology
- 2021 National Kidney Foundation, Working Group: Atypical hemolytic uremic syndrome
Recommendations for revising the nomenclature (Group co-chair)
- 2021-2024 Communications Committee, Hemostasis and Thrombosis Research Society
- 2021-2025 Committee on Educational Affairs, American Society of Hematology

• **Main Scientific Publications:**

Original Research [OR]

1. **Chaturvedi S**, Carcioppollo D, Zhang L, and McCrae KR. Management and Outcomes for Patients with TTP: Analysis of 100 Cases at a Single Institution. *Am J Hematol* 2013; 88(7):560-565.
2. **Chaturvedi S**, Sidana S, Elson P, Khorana A, McCrae KR. Symptomatic and incidental venous thromboembolic disease are both associated with mortality in patients with prostate cancer. *PLoS One*. 2014 Aug 15;9(8):e94048.
3. **Chaturvedi S**, McCrae KR. Over-testing for Heparin-Induced Thrombocytopenia in Hospitalized Patients. *J Thromb Thrombolysis*. 2014;40(1):12-16.
4. **Chaturvedi S**, Cockrell E, Espinola R, Hsi L, Fulton S, Li, L, Fonseca F, Kundu S, McCrae KR. Circulating Microparticles in patients with antiphospholipid antibodies: Characterization and Associations. *Thromb Res*. 2015;135(1):102-8.
5. **Chaturvedi S**, Abbas H, McCrae KR. Increased Morbidity During Long Term Follow Up of Survivors of Thrombotic Thrombocytopenic Purpura. *Am J Hematol* 2015;91(10):E208.
6. **Chaturvedi S**, Ghafari DL, Kassim AA, Glassberg J, Rodeghier M, DeBaun MR. Rapidly progressive acute chest syndrome in sickle cell anemia: a distinct acute chest syndrome phenotype. *Am J Hematol* 2016; 91(12):1185-90.
7. **Chaturvedi S**, Ghafari DL, Kassim AA, Rodeghier M, DeBaun MR. Elevated tricuspid regurgitant jet velocity, reduced forced expiratory volume in 1 second, and mortality in adults with sickle cell disease. *Am J Hematol* 2017;92(2):125-30.
8. Ghafari J, **Chaturvedi S**, Kassim AA, Rodeghier M, DeBaun MR. Secondary benefit of maintaining normal transcranial Doppler velocities when using hydroxyurea for prevention of severe sickle cell anemia. *Ped Blood Cancer* 2017;64(7).
9. **Chaturvedi S**, Oluwole O, Cataland S, McCrae KR. Post-traumatic stress disorder and depression in survivors of thrombotic thrombocytopenic purpura. *Thrombosis Research* 2017;151:51-56.
10. **Chaturvedi S**, Clancy M, Schaefer N, Oluwole O, McCrae KR. Post-traumatic stress disorder and depression in adults with hereditary hemorrhagic telangiectasia. *Thrombosis Research* 2017;153:14-18.
11. **Chaturvedi S**, Bhatnagar P, Ofori-Acquah S, Williams S, Bean CJ, Steinberg M, Casella J, Casella E, Arking DE, DeBaun MR. Genome wide association study identifies variants associated with vaso-occlusive pain children with sickle cell anemia. *Blood* 2017;130(5):686-88.

12. Vaught AJ, Braunstein EM, Jasem J, Yuan X, Makhlin I, Elondou S, Baines AC, **Chaturvedi S**, Blakemore K, Sperati CJ, Brodsky RA. Germline mutations in the alternative pathway of complement. *JCI Insight* 2018;3(6).pii:99128
13. **Chaturvedi S**, Clancy M, Schaefer N, Kasthuri RS. Characteristics and outcomes of venous thromboembolism in patients with hereditary hemorrhagic telangiectasia. *Thrombosis Research* 2018;169:41-43.
14. **Chaturvedi S**, Ghafuri DL, Jordan N, Kassim AA, Rodeghier M, DeBaun MR. Clustering of multiple organ disease and earlier mortality in adults with sickle cell disease: a retrospective-prospective cohort study. *Am J Hematol* 2018;93(9):1153-1160.
15. DeBaun MR, Ghafuri DL, Rodeghier M, Maitra P, **Chaturvedi S**, Kassim AA, Ataga KI. Decreased median survival of adults with sickle cell disease after adjusting for left truncation bias: a pooled analysis. *Blood* 2019;133(6):615-617.
16. **Chaturvedi S**, Koo M, Dackiw E, Koo G, Frank S, Resar LM. Preoperative treatment of anemia and outcomes in surgical Jehovah's Witness patients. *Am J Hematol* 2019;94(2):E55-58.
17. Kohli R, Shingina A, New S, **Chaturvedi S**, Benson A, Biggins SW, Bhambha K. Thromboelastography parameters are associated with cirrhosis severity. *Digestive Disease and Sciences* 2019;64(9):2661-2670.
18. Upreti H, Kasmani J, Dane K, Braunstein EM, Strieff MB, Moliterno AR, Shanbhag S, Sperati CJ, Kickler TS, Gottesman RF, Brodsky RA, **Chaturvedi S**. Reduced ADAMTS13 activity during TTP remission is associated with stroke in TTP survivors. *Blood* 2019;134(13):1037-1045.
 - Cited in: Cuker et al. Redefining Outcomes in Immune TTP: An International Working Group Consensus Report. *Blood* 2021 [Epub ahead of print].
19. Carlson DS, Bartholomew JR, Gomes MP, McCrae KR, **Chaturvedi S**. Outcomes of cardiovascular surgery utilizing heparin versus direct thrombin inhibitors in patients with previously diagnosed HIT. *Thromb Haemost* 2019. doi: 10.1055/s-0039-3401825. [Epub ahead of print]
20. **Chaturvedi S**, Braunstein EM, Yuan X, Yu J, Alexander A, Chen H, Gavriilaki E, Alluri R, Streiff MB, Petri M, Crowther M, McCrae KR, Brodsky RA. Complement activity and complement regulatory gene mutations are associated with thrombosis in APS and CAPS. *Blood* 2020;134(24):2125-2126.
 - Accompanying editorial: Connell NT. Taken the wrong way, a complement becomes catastrophic. *Blood* 2020;135(4):233-234.
 - Discussed in: Year's best - Complement and thrombosis: What is, and what might be. *The Hematologist* 2021;18(1).
21. Karantanos T, **Chaturvedi S**, Braunstein EM, Spivak J, Resar L, Karanika S, Williams DM, Rogers O, Gocke CD, Moliterno AR. Sex determines the presentation and outcomes in MPN and is related to sex-specific differences in mutational burden. *Blood Advances* 2020;4(12):2567-2576.
22. Liu A, Dhaliwal N, Upreti H, Kasmani J, Dane K, Moliterno M, Streiff MB, Braunstein EM, Brodsky RA, **Chaturvedi S**. Reduced sensitivity of PLASMIC and French Scores for the diagnosis of Thrombotic Thrombocytopenic Purpura (TTP) in Older Individuals. *Transfusion* 2020 [Online ahead of print].

23. Yu J, Yuan C, Chen H, **Chaturvedi S**, Braunstein B, Brodsky RA. Direct activation of the alternative complement pathway by SARS-CoV-2 spike proteins is blocked by factor D inhibition. *Blood* 2020;136(18):2080-2089.
 - Accompanying editorial: Kulkarni H, Atkinson JP. Targeting complement in COVID-19. *Blood* 2020;136(18):2000-2001.
24. **Chaturvedi S**, Hussain S, Upreti H, Dhaliwal N, Braunstein EM, Yuan X, Sperati CJ, Moliterno AR, Brodsky RA. Discontinuation of complement inhibition therapy in atypical hemolytic uremic syndrome: outcomes and lessons from a physician-directed protocol. *Blood Advances* 2021;5(5):1504-1512.
25. Sukumar S, Brodsky MA, Hussain S, Yanek LR, Moliterno AM, Brodsky RA, Cataland SR, **Chaturvedi S**. Cardiovascular disease is a leading cause of mortality among iTTP survivors in clinical remission. *Blood Advances* 2021 (doi: 10.1182/bloodadvances.2020004169. Online ahead of print).
26. Brodsky M, Selvakumar S, Hussain S, Moliterno M, Streiff MB, Braunstein EM, Brodsky RA, **Chaturvedi S**. Major Adverse Cardiovascular Outcomes after recovery from Thrombotic Thrombocytopenic Purpura. *Am J Hematology* 2021 (doi: 10.1002/ajh.26341. Online ahead of print)
27. Braunstein EM, Chen H, Juarez F, Yang F, Tao L, Makhlin I, Williams DM, **Chaturvedi S**, Pallavajjala A, Karantanos T, Martin R, Wohler E, Sobreira N, Gocke CD, Moliterno AR. Germline *ERBB2/HER2* Coding Variants Are Associated with Increased Risk of Myeloproliferative Neoplasms. *Cancers (Basel)* 2021;13(13):3246.
28. Yu J, Gerber GF, Chen H, Yuan X, **Chaturvedi S**, Braunstein EM, Brodsky RA. Complement Dysregulation is Associated with Severe COVID-19 Illness. *Haematologica* 2021 [Accepted, In Press].
29. Gerber GF, Yuan X, Yu J, Cher BAY, Braunstein EM, **Chaturvedi S**, Brodsky RA. COVID-19 vaccines induce severe hemolysis in paroxysmal nocturnal hemoglobinuria. *Blood* 2021 Jul 1;137(26):3670-3673.

Review Articles [RA]

1. **Chaturvedi S**, McCrae KR. Recent Advances in the Antiphospholipid Syndrome. *Curr Opin Hematol. Curr Opin Hematol.* 2014;21(5):371-9.
2. **Chaturvedi S**, Garcia JA. Novel agents for the management of Castrate Resistant Prostate Cancer. *J. Carcinogenesis* 2014;13:5.
3. **Chaturvedi S**, McCrae KR. The antiphospholipid syndrome: Still an enigma. *Hematology Am Soc Hematology Education Program* 2015;2015(1):53-57.
4. **Chaturvedi S**, Neff A, Nagler A, Savani U, Mohty M, Savani B. Venous thromboembolism in hematopoietic stem cell transplantation. *Bone Marrow Transpl* 2016;51(4):473-478.
5. **Chaturvedi S**, DeBaun MR. Evolution of Sickle Cell Disease from a life-threatening disease of children to a chronic disease of adults: The last 40 years. *Am J Hematol* 2016;01(1):5-14.
6. **Chaturvedi S**, Alluri R, McCrae KR. Extracellular vesicles in the antiphospholipid syndrome. *Sem Thromb Hemostasis* 2018;169:41-43.
7. Beckermann KE, Sharma D, **Chaturvedi S**, Msaoul O, Abboud MR, Allory Y, et al. Renal Medullary Carcinoma: Establishing Standards in Practice. *J Oncol Pract.* 2017;13(7):414-421.

8. **Chaturvedi S**, McCrae KR. Clinical Risk Assessment in the antiphospholipid syndrome: Current Landscape and Emerging Biomarkers. *Curr Rheumatol Rep* 2017;19(7):43.
9. **Chaturvedi S**, McCrae KR. Diagnosis and management of the antiphospholipid syndrome. *Blood Rev* 2017;31(6):406-417.
10. **Chaturvedi S**, Arnold DM, McCrae KR. Splenectomy for immune thrombocytopenia: down but not out. *Blood* 2018;131(11):1172-1182.
11. Dane K, **Chaturvedi S**. Beyond plasma exchange: novel therapies for thrombotic thrombocytopenic purpura. *Hematology Am Soc Hematology Education Program* 2018 (1):539-547.
12. **Chaturvedi S**, Brodsky RA, McCrae KR. Complement in the pathophysiology of the antiphospholipid syndrome. *Front Immunol* 2019;10:449.
13. **Kohli R**, **Chaturvedi S**. Epidemiology and clinical manifestations of immune thrombocytopenia. *Hamostaseologie* 2019;39(3):238-249.
14. Mazepa MM, Masias C, **Chaturvedi S**. How targeted therapy disrupts the treatment paradigm for acquired TTP - the risks, benefits and unknowns. *Blood* 2019;134(5):415-420.
15. Frank SM, **Chaturvedi S**, Goel R, Resar LM. Approaches to Bloodless Surgery for Oncology Patients. *Hematol Oncol Clin North Am.* 2019;33(5):857-871.
16. Vaught AJ, Braunstein E, **Chaturvedi S**, Blakemore K, Brodsky RA. A review of the alternative pathway of complement and its relation to HELLP syndrome: is it time to consider HELLP a disease of the alternative pathway. *J Matern Fetal Neonatal Med* 2020:1-9.
17. **Chaturvedi S**, Braunstein EM, Brodsky RA. Antiphospholipid syndrome: complement activation, complement gene mutations and therapeutic implications. *J Thromb Haemostasis* 2021;19(3):607-616.
18. **Gerber GF**, **Chaturvedi S**. How to recognize and manage COVID-19 associated coagulopathy. *Hematology (American Society of Hematology Education Program)* 2021 [Accepted, In Press].
19. **Sukumar S**, Gavriilaki E, **Chaturvedi S**. Updates in Thrombotic Thrombocytopenic Purpura: recent developments in pathogenesis, treatment and survivorship. *Thrombosis Update* 2021;5:100062 (doi: 10.1016/j.tru.2021.100062).

Case Reports [CR]

1. Hammadah M, **Chaturvedi S**, Jue J, Buletko AB, Qintar M, Madmani ME, Sharma P. Acral gangrene as a presentation of non-uremic calciphylaxis. *Avicenna J Med.* 2013;3(4):109-11.
2. Skoczynska M, Crowther MA, Chowaniec M, Ponikowska M, **Chaturvedi S**, Legault K. Thrombotic microangiopathy in the course of catastrophic antiphospholipid syndrome: Case report and review of Literature. *Lupus* 2020; 29(6):631-639.
3. Bailey CR, Rowan NR, Chaturvedi S, Weiss CR. Concurrent hereditary hemorrhagic telangiectasia and hereditary hemochromatosis: a case report. *Am J Med* 2021;134(3):e205-e206
4. Mopuru R, Chaturvedi S, Burkholder BM. Relapsing Thrombotic Thrombocytopenic Purpura in a Patient Treated with Infliximab for Chronic Uveitis. *Ocul Immunol Inflamm* 2020 Sep 18;1-3 (Online ahead of print).
5. Dane K, Lindsley JP, Kickler TS, Streiff MB, Moliterno AM, Yui JC, Naik RP, **Chaturvedi S**. Continuous infusion of von Willebrand factor concentrate is effective

in the management of acquired von Willebrand Disease. *Blood Advances* 2021;5(14):2813-2816.

Book Chapters, Monographs [BC]

1. **Chaturvedi S**, Savona MR. Cancer-Related Anemia. Hematology Board Review Manual. Volume 10, Part 1 (2015).
2. **Chaturvedi S**, Morgan DS. Hodgkin Lymphoma. Skeel's Handbook of Hematology, 9th Ed (2016).
3. **Chaturvedi S**, McCrae KR. Thrombocytopenia in Pregnancy. Platelets in thrombotic and non-thrombotic disorders. 2016 Springer. Ed. Paolo Gresele.
4. **Chaturvedi S**, McCrae KR. Thrombocytopenia in Pregnancy. Platelets. 4e (2018) Elsevier/Academic Press. Ed. Alan D. Michelson.
5. **Chaturvedi S**, George B, Savani BN. Bleeding and thrombotic complication of stem cell transplantation. EBMT Handbook 2018.
6. **Chaturvedi S**. Disorders of Coagulation and Hemorrhage. Rutherford Vascular Surgery and Endovascular Therapy 10e. Editors: Bruce A Perler, Peter Sidawy.