SUMMARY & CONCLUSION

Budd Chiari syndrome is a heterogeneous group of disorders characterized by hepatic venous outflow obstruction at the level of the hepatic venules, large HVs, IVC, or the right atrium [(6)]. But generally implies thrombosis of HVs & /or the intrahepatic or suprahepatic IVC. Up to 50% of cases of BCS are due to chronic myeloproliferative disorders like polycythemia vera or coagulopathies like factor V (Leiden) gene mutation. [(112)]

The BCS may be primary, due to a membrane in IVC, or secondary to neoplasms, oral contraceptive use, pregnancy, hypercoagulable states, myeloproliferative disorders & paroxysmal nocturnal hemoglobinuria. In practice, no identifiable cause is found in up to 70% of patients. [(62)]

The clinical presentation is highly variable but may be categorized as acute & perhaps FHF, as subacute without evidence of cirrhosis or as chronic with evidence of portal hypertension & cirrhosis. [(113)]

Doppler US of the liver is the initial investigation when BCS is suspected. CECT scanning, however, is better to detect parenchymal inhomogeneity & to delineate the venous anatomy of the liver in preparation for TIPS. MRI shows HVT well but is more expensive than CT scanning & less readily available. [(61)]

Treatment depends on the underlying cause, the anatomic location, the extent of the thrombotic process & the severity of liver disease. Treatment options can be divided into medical treatment including anticoagulation & thrombolysis**,** radiological procedures such as angioplasty, TIPS & surgical procedures including porto-systemic shunting & OLT. [(114)]

Anticoagulation alone is unlikely to lead to sufficient recanalization of occluded vessels, or development of adequate collateral circulation. However, satisfactory long-term survival with only medical therapy has been reported. [115] This may give rise to redefine the role of OLT which may now be preserved for patients failing TIPS.[82]

TIPS was created using standard techniques by insertion of Palmaz stents, Wallstents or covered Viatorr stents. When a HV remnant was not present, PV was punctured directly from the IVC.[116]

After TIPS procedure patients underwent anticoagulation according to the guidelines. Patients underwent control angiography 3 months after TIPS & in addition if shunt dysfunction was suspected. An abdominal US was performed every 6 months . TIPS dysfunction was defined as an increase in portosystemic gradient above 10 to 12 mmHg & clinical signs of portal hypertension.[38]

Therapy for BCS usually requires TIPS or OLT. The treatment modality is dependent on duration of illness, extent of thrombosis & degree of liver dysfunction. TIPS is successful as initial therapy as it promotes clinical improvement in the long run even though shunt revisions are generally needed. Recently, the necessity of subsequent OLT was remarkably low & thus TIPS could be regarded as definitive treatment option in BCS. OLT in BCS is associated with an increased risk of thrombembolic complications & early graft failure in spite of consequent anticoagulation therapy. [117]

REFERENCES

1. **Eden A., (2007)**: Budd Chiari Syndrome: a review of imaging findings. *PubMed. EUR J Radiol*; 61(1): 44-56.

2. **De Leve L., (2006):** Liver information, Budd Chiari syndrome. Liver transplant program & center for liver disease. *www.uscliver@surgery.hsc.usc.edu*

3. **Roy PK, Barakat G, Nwakakwa , et al., (2006):** The Budd Chiari Syndrome, eMedicine Specialities, Medicine, Gastroenterology. *http://emedicine.medscape.com/article/184430-followup*

4. **Murad SD, Valla DC, De Groen PC, et al., (2004):** Determinants of survival and the effect of portosystemic shunting in patients with Budd Chiari syndrome. *Hepatology*; 39 (2):500- 508.

5. **Brancatelli G, Vilgrain V, Federal MP, et al., (2007):** Budd- Chiari Syndrome: Spectrum of Imaging Findings. *AJR;* 188:168-176.

6. **Menon KVN, Shah V, Kamath PS., (2004):** The Budd Chiari Syndrome. *NEJM*; 350: 578- 585.

7. **Perello A, Pagan GJC, Gilbert R, et al., (2002):** TIPS is a useful long-term derivative therapy for patients with Budd Chiari syndrome uncontrolled by medical therapy. *Hepatology* 35:132-139.

8. **Williams P, Warwick R, Dyson M, et al., (1989):** Anatomy of the alimentary tract. In: Gray's Anatomy. 37th ed. Edinburgh: *Educational low-priced books scheme with Churchill Livingstone;* 1384-1393.

9. **Snell RS., (1986):** The abdominal cavity. In: Clinical Anatomy for Medical Students. *3rd ed. Boston: Little, brown and company*, 203-297.

10. **Majno PE, Mentha G, Morel P, et al., (2002):** Arantius' ligament approach to the left hepatic vein and to the common trunk. *J Am Coll Surg* 195:737–739.

11. **Lamos DJ., (2001):** The liver. In. Grainger R, Allison D, eds. Grainger and Allison's Diagnostic Radiology, A textbook of Medical Imaging 4th ed. London: *Churchill Livingstone Inc*; 1237-1276.

12. **Bismuth H., (1982):** Anatomical surgery and surgical anatomy of the liver. *World J Surg*; 6:3–9.

13. **Fasel J. Gailloud P, Terrier F, et al., (1996):** Segmental anatomy of the liver: a review and a proposal for an international nomenclature. *European radiology*; 6: 834-837.

14. **Smith D, Downey D, Spouge A, et al., (1998):** Sonographic demonstration of Couinaud's liver segments. *J Ultrasound Med*; 17:375–381.

15. **Crocetti L, Pina CD, Rocchi E, et al., (2005):** Imaging Landmarks for Segmental Lesion Localization. In: Focal liver lesions: Detection, Characterization and Ablation. *Springer-Verlag Berlin Heidelberg*; P: 63-71.

16. **Lafortune M, Madore E, Patriquin H, et al., (1991):** Segmental anatomy of the liver: a sonographic approach to the Couinaud nomenclature. *Radiology*; 181:443–448.

17. **Soyer P, Bluemke DA, Bliss DF, et al., (1994):** Surgical segmental anatomy of the liver: demonstration with spiral CT during arterial portography and multiplanar reconstruction. AJR; 163:99–103.

18. **Kogure K, Kuwano H, Fujimaki N, et al., (2000):** Relation among portal segmentation, proper hepatic vein, and external notch of the caudate lobe in the human liver. *Ann Surg*; 231:223–228.

19. **Nitz WR., (2002):** Fast and ultrafast non-echo-planar MR imaging techniques. *Eur Radiol*; 12:2866–2882.

20. **DeLeve LD, Shulman HM, McDonald GB., (2002):** Toxic injury to hepatic sinusoids: sinusoidal obstruction syndrome (veno-occlusive disease). *Semin Liver Dis*; 22: 27–42.

21. **Cazals-Hatem D, Vilgrain V, Genin P, et al., (2003)**: Arterial and portal circulation and parenchymal changes in Budd-Chiari syndrome: a study in 17 explanted livers. *Hepatology*; 37:510-519.

22. **McCuskey RS., (2000)**: Morphological mechanisms for regulating blood flow through hepatic sinusoids. *Liver*; 20:3-7.

23. **Espinosa G, Font J, Garcia-Pagan JC, et al. (2001):** Budd-Chiari syndrome secondary to antiphospholipid syndrome: clinical and immunologic characteristics of 43 patients. *Medicine (Baltimore)*; 80:345-354.

24. **Janssen HL, García-Pagán JC, Elias E, et al., (2003):** Budd-Chiari syndrome: a review by an expert panel. *J Hepatol*; 38:364 -371.

25. **Ludwig J, Hashimoto E, McGill DB, et al., (1990):** Classification of hepatic venous outflow obstruction: ambiguous terminology of the Budd-Chiari syndrome. *Mayo Clin Proc*; 65:51-55.

26. **Gupta, S, Barter, S, Phillips, GW, et al., (1987)**: Comparison of ultrasonography, computed tomography and 99mTc liver scan in diagnosis of Budd–Chiari syndrome. *Gut*; 28: 242–247.

27. **Colak Y, Karasu Z, Oruc N, et al., (2006)**: Hyperhomocysteinaemia and factor V Leiden mutation are associated with Budd- Chiari syndrome. *Eur J Gastroenterol Hepatol*; 18: 917–920**.**

28. **Kiladjian JJ, Cervantes F, Leebeek FW, et al., (2008):** The impact of JAK2 and MPL mutations on diagnosis and prognosis of splanchnic vein thrombosis. A report on 241 cases. Blood; 111(10):4835–4836**.**

29. **Denninger MH, Chaït Y, Casadevall N, et al., (2000)**: Cause of portal or hepatic venous thrombosis in adults: the role of multiple concurrent factors. *Hepatology;* 31**:** 587–591**.**

30. **Mohanty D, Shetty S, Ghosh K, et al., (2001)**: Hereditary thrombophilia as a cause of Budd–Chiari syndrome: a study from Western India. *Hepatology;* 34**:** 666–670**.**

31. **Salooja N, and Perry DJ., (2001)**: Thrombelastography. Blood Coagul Fibrinolysis; 12: 327–337.

32. **Valla DC., (2002)**: Hepatic vein thrombosis (Budd–Chiari syndrome). *Semin Liver Dis;* 22**:** 5–14.

33. **Kubo T, Shibata T, Itoh K, et al., (2006)**: Outcome of percutaneous transhepatic venoplasty for hepatic venous outflow obstruction after living donor liver transplantation. *Radiology*; 239:285–290**.**

34. **Kim TK, Chung JW, Han JK, et al., (1999)**: Hepatic changes in benign

obstruction of the hepatic inferior vena cava: CT findings. *AJR*; 173:1235-1242.

35. **Hadengue A, Poliquin M, Vilgrain V, et al., (1994)**: The changing scene of hepatic vein thrombosis: recognition of asymptomatic cases. *Gastroenterology*; 106:1042-1047.

36. **Okuda K., (2002)**: Inferior vena cava thrombosis at its hepatic portion (obliterative hepatocavopathy). *Semin Liver Dis*; 22:15–26.

37. **Ibarrola C, Castellano VM, Colina F., (2004)**: Focal hyperplastic hepatocellular nodules in hepatic venous outflow obstruction: a clinicopathological study of four patients and 24 nodules. *Histopathology;* 44**:** 172–179.

38. **de Franchis R**., **(2005):** Evolving Consensus in Portal Hypertension Report of the Baveno IV Consensus Workshop on methodology of diagnosis and therapy in portal hypertension. *J Hepatol;* 43(1):167–176.

39. **Shrestha SM, Subedi NB, Shrestha S**, **et al., (1996)**: Endemicity and clinical picture of liver disease due to obstruction of the hepatic portion of the inferior vena cava in Nepal. *J Gastroenterol Hepatol;* 11**:** 170–179.

40. **Horton JD, San-Miguel FL, and Ortiz JA., (2008)**: Budd Chiari syndrome: illustrated review of current management. *Liver International ISSN*; 1478-3223.

41. **Zimmerman MA, Cameron AM and Ghobrial RM., (2006)**: Budd–Chiari syndrome. *Clin Liver Dis;* **10**: 259–273, viii.

42. **Melear JM, Goldstein RM, Levy MF, et al., (2002):** Hematologic aspects of liver transplantation for Budd–Chiari syndrome with special reference to myeloproliferative disorders. *Transplantation*; 74: 1090–1095.

43. **Chung RT, Iafrate AJ, Amrein PC, et al., (2006)**: Case records of the Massachusetts general hospital. Case 15- 2006. A 46-year-old woman with sudden onset of abdominal distention. *NEJM*; 354: 2166–2175.

44. **Bargalló X, Gilabert R, Nicolau C, et al., (2006):** Sonography of Budd-Chiari Syndrome. *AJR*; 187:33-41.

45. **Valla DC., (2003)**: The diagnosis and management of the Budd-Chiari

syndrome: consensus and controversies. *Hepatology*; 38:793 -803.

46. **Bargalló X, Gilabert R, Nicolau C, et al**., **(2003):** Sonography of the caudate vein: value in diagnosing Budd-Chiari syndrome. *AJR*; 181:1641-1645.

47. **Kane R, and Eustace S**., **(1995)**: Diagnosis of Budd-Chiari syndrome: comparison between sonography and MR angiography. *Radiology*; 195:117–121.

48. **Zwiebel WJ., (1995)**: Sonographic diagnosis of hepatic vascular disorders. Semin Ultrasound CT MR ; 16(1):34–48.

49. **Mathieu D, Vasile N, Menu Y, et al., (1987)**: Budd-Chiari syndrome: dynamic CT. *Radiology*; 165:409–413.

50. **Miller WJ, Federle MP, Straub WH, Davis PL. (1993)**: Budd-Chiari syndrome: imaging with pathologic correlation. *Abdom Imaging*; 18:329–335.

51. **Brancatelli G, Federle MP, Grazioli L, et al., (2002):** Benign regenerative nodules in Budd- Chiari syndrome and other vascular disorders of the liver: radiologic-pathologic and clinical correlation. *RadioGraphics*; 22:847–862.

52. **Kanematsu M, Hoshi H, Imaeda T, et al., (1997)**: Detection and characterization of hepatic tumors: value of combined helical CT hepatic arteriography and CT during arterial portography.*AJR;* 168:1193-1198.

53. **Quiroga S, Sebastia C, Pallisa E, et al., (2001)**: Improved diagnosis of hepatic perfusion disorders: value of hepatic arterial phase imaging during helical CT. *RadioGraphics*; 21:65-81.

54. **Xiao-chun M, Kang-shun Z, Jie Q, et al., (2007)**: Clinical significance of multislice spiral CT scans in hepatic veins occlusion in Budd-Chiari syndrome. *CMJ*; 120(2):100-105.

55. **Camera L, Mainenti PP, Di Giacomo A, et al., (2006)**: Triphasic helical CT in Budd-Chiari syndrome: patterns of enhancement in acute, subacute and chronic disease. *Clin Radiol*; 61: 331-337.

56. **Erden A, Erden I , Karayalçin S et al., (2002)**: Budd-Chiari Syndrome: Evaluation with Multiphase Contrast-Enhanced Three-Dimensional MR Angiography. *AJR*; 179:1287-1292.

57. **Hawighorst H, Schoenberg SO, Knopp MV, et al., (1999)**: Hepatic lesions: morphologic and functional characterization with multiphase breath-hold 3D gadolinium-enhanced MR angiography—initial results. *Radiology*; 210: 89 -96.

58. **Murata S, Hai Y, Asato M, et al**., (**1995):** Effect of temporary occlusion of the hepatic vein on dual blood supply in the liver: evaluation with spiral CT. Radiology; 197:351 -356.

59. **Cho O-K, Koo J-H, Kim Y-S, et al., (1996)**: Collateral pathways in Budd-Chiari syndrome: CT and venographic correlation. *AJR*; 167:1163-1167.

60. **Dilawari JB, Bambery P, Chawla Y, et al., (1994)**: Hepatic outflow obstruction (Budd-Chiari syndrome): experience with 177 patients and a review of the literature. *Medicine (Baltimore);* 73: 21-36.

61. **Noone TC, Semelka RC, Siegelman ES, et al., (2000)**: Budd-Chiari syndrome: spectrum of appearances of acute, subacute, and chronic disease with magnetic resonance imaging. *J Magn Reson Imaging*; 11: 44-50.

62. **Soyer P, Rabenandrasana A, Barge J, et al.**, (**1994):** MRI of Budd-Chiari syndrome. *Abdom Imaging*; 19: 325-329**.**

63. **Vlachogiannakos J, Patch D, Watkinson A, et al., (2000)**: Carbon-dioxide portography: an expanding role? *Lancet*, 355: 987–988.

64. **Savader SJ., (1993):** Budd -Chiari syndrome, SCVIRVideodisc II-Portal hypertension. Options for Diagosis and Treatmet.

65. **Savader SJ, and Trerotola SO., (1996):** The Budd -Chiari syndrome; Veous interventional radiology, 5:67-68**.**

66. **Mathieu D, Kracht M, Zafrani E, et al., (1990)**: Budd-Chiari syndrome. Ferrucci J, Matthieu D, eds. Advances in Hepatobiliairy Radiology. St Louis: C.V. Mosby Company; 3–28.

67. **Fisher NC, McCafferty I, Dolapci M, et al., (1999)**: Managing Budd-

Chiari syndrome: a retrospective review of percutaneous hepatic vein angioplasty and surgical shunting. *Gut*; 44:568-74.

68. **Sharma S, Texeira A, Texeira P, et al., (2004):** Pharmacological thrombolysis in Budd Chiari syndrome: a single centre experience and review of the literature. *J Hepatol*; 40: 172–80.

69. **Rossleigh MA, Uren RF, and Morris JO., (1984):** Radionucide liver scan: a screening test for the Budd-Chiari syndrome. *MedfAustral;* 140:234-236.

70. **Picard M, Carrier L, Chartrand R, et al., (1987**); Budd-Chiari Syndrome: Typical and Atypical Scintigraphic Aspects, *J NuciMed* 28:803-809.

71. **Eapen CE, Velissaris D, Heydtmann M, et al., (2006):** Favourable medium term outcome following hepatic vein recanalisation and/or transjugular intrahepatic portosystemic shunt for Budd Chiari syndrome. *Gut*; 55:878–884.

72. **Valla DC., (2006)**: Prognosis in Budd Chiari syndrome after reestablishing hepatic venous drainage. *Gut*; 55:761–763.

73. **Plessier A, Sibert A, Consigny Y, et al**., **(2006)**: Aiming at minimal invasiveness as a therapeutic strategy for Budd-Chiari syndrome. *Hepatology*; 44(5):1308–1316.

74. **Landolfi R, Marchioli R, Kutti J, et al., (2004)**: Efficacy and safety of low-dose aspirin in polycythemia vera. *NEJM*; 350:114–124.

75. **Khuroo MS, Al-Suhabani H, Al-Sebayel M, et al., (2005)**: Budd-Chiari syndrome: long-term effect on outcome with transjugular intrahepatic portosystemic shunt. *J Gastroenterol Hepatol*; 20:1494–1502.

76. **Bates SM and Ginsberg JS. (2004)**: Clinical practice. Treatment of deep-vein thrombosis. *NEJM*; 351:268–277.

77. **Barrault C, Plessier A, Valla D, et al., (2004)**: Non surgical treatment of Budd-Chiari syndrome: a review. *Gastroenterol Clin Biol*; 28:40–49.

78. **Valla D, Hadengue A, el Younsi M, et al., (1997)**: Hepatic venous

outflow block caused by short-length hepatic vein stenoses. *Hepatology*; 25:814–819.

79. **Lee BB, Villavicencio L, Kim YW, et al., (2006):** Primary Budd- Chiari syndrome: outcome of endovascular management for suprahepatic venous obstruction. *J Vasc Surg*; 43:101– 108.

80. **Qiao T, Liu CJ, Liu C, et al., (2005):** Interventional endovascular treatment for Budd-Chiari syndrome with long-term follow-up. *Swiss Med Wkly*; 135:318–326.

81. **Olliff SP., (2006)**: Transjugular intrahepatic portosystemic shunt in the management of Budd Chiari syndrome. *Eur J Gastroenterol Hepatol*; 18: 1151–4.

82. **Klein AS., (2006)**: Management of Budd–Chiari syndrome. *Liver Transpl*; 12(Suppl 2): S 23–28.

83. **Langlet P and Valla D., (2002)**: Is surgical portosystemic shunt the treatment of choice in Budd-Chiari syndrome? Acta Gastroenterol Belg; 65: 155–60.

84. **Feng LS, Peng QP, Li K, et al., (2004)**: Management of severe Budd-Chiari syndrome: report of 147 cases. *Hepatobiliary Pancreat Dis Int* ;3:522–525

85. **Bachet JB, Condat B, Hagege H, et al., (2007)**: Long term portosystemic shunt patency as a determinant of outcome in Budd-Chiari syndrome. *J Hepatol* ;46(1):60–68

86. **Srinivasan P, Rela M, Prachalias A, et al., (2002)**: Liver transplantation for Budd–Chiari syndrome. *Transplantation*; 73: 973–7.

87. **Tefferi A., (2000):** Myelofibrosis with myeloid metaplasia. *NEJM*; 342:1255-65.

88. **Ruckert JC, Ruckert RI, Rudolph B, et al., (1999):** Recurrence of the Budd-Chiari syndrome after orthotopic liver transplantation. *Hepatogastroenterology*; 46:867-871.

89. **Aucejo F, Winans C, Henderson JM, et al., (2006):** Isolated right hepatic vein obstruction after piggyback liver transplantation. *Liver*

Transpl; 12: 808–812.

90. **Boyer TD., (2003):** Transjugular Intrahepatic Portosystemic Shunt: Current status. *GASTROENTEROLOGY*; 124:1700–1710.

91. **Ro¨ssle M, Haag K, Ochs A, et al., (1994)**: The transjugular intrahepatic portosystemic stent-shunt procedure for variceal bleeding. *NEJM*; 330:165–171.

92. **Burroughs AK and Patch D., (1999)**: Transjugular intrahepatic portosystemic shunt. *Semin Liver Dis*; 19:457–473.

93. **Ro¨ssle M, Siegersterrer V, Olschewski M, et al., (2001):** How much reduction in portal pressure is necessary to prevent variceal rebleeding? A longitudinal study in 225 patients with transjugular intrahepatic portosystemic shunts. *Am J Gastroenterol*; 96:3379–3383.

94. **Casado M, Bosch J, Garcia-Pagan JC, et al., (1998)**: Clinical events after transjugular intrahepatic portosystemic shunt: correlation with hemodynamic findings. *Gastroenterology*; 114:1296–1303.

95. **Gandini R, Konda D and Simonetti G.**, **(2006)**: Transjugular intrahepatic portosystemic shunt patency and clinical outcome in patients with Budd-Chiari syndrome: covered versus uncovered stents. *Radiology*; 241(1):298–305.

96. **Ryu RK, Durham JD, Krysl J, et al., (1999)** : Role of TIPS as a bridge to hepatic transplantation in Budd-Chiari syndrome. *J Vasc Interv Radiol*; 10:799-805.

97. **Molmenti EP, Segev DL, Arepally A, et al. (2005)**: The utility of TIPS in the management of Budd-Chiari syndrome. *Ann Surg*; 241:978–981; discussion 982–973.

98. **Hernandez-Guerra M, Turnes J, Rubinstein P, et al., (2004)**: PTFE covered stents improve TIPS patency in Budd–Chiari syndrome. *Hepatology*; 40: 1197–202.

99. **Martin M, Zajko AB, Orons PD, et al., (1993)**: Transjugular intrahepatic portosystemic shunt in the management of variceal bleeding: indications and clinical results. *Surgery*; 114:719–26; discussion 726–727.

100. **Boyer TD and Henderson JM.., (2002)**: Portal hypertension and bleeding esophageal varices. In: Zakim D, Boyer TD, eds. Hepatology: a textbook of liver disease (4th ed). Philadelphia: Saunders: 581–629.

101. **Jalan R, Forrest EH, Stanley AJ, et al., (1997)**: A randomized trial comparing transjugular intrahepatic portosystemic stent-shunt with variceal band ligation in the prevention of rebleeding from esophageal varices. *Hepatology*; 26:1115–1122.

102. **Sauer P, Theilmann L, Stremmel W, et al., (1997)**: Transjugular intrahepatic portosystemic stent shunt versus sclerotherapy plus propranolol for variceal rebleeding. *Gastroenterology;* 113:1623–1631.

103. **Sauer P, Theilmann L, Herrmann S, et al., (1996)**: Phenprocoumon for prevention of shunt occlusion after transjugular intrahepatic portosystemic stent shunt: a randomized trial. *Hepatology*; 24:1433–1436.

104. **Bureau C, Carlos J, Pagan G, et al., (2002):** The use of polytetrafluoroethylene (PTFE) covered stents improves the patency of TIPS: results of a randomized study (abstr). *Hepatology*, 36:101A.

105. **Ro¨ssle M, Siegerstetter V, Huber M, et al., (1998)**: The first decade of the transjugular intrahepatic portosystemic shunt (TIPS): *state of the art. Liver*; 18:73–89.

106. **Saxon RR, Mendel-Hartvig J, Corless CL, et al., (1996):** Bile duct injury as a major cause of stenosis and occlusion in transjugular intrahepatic portosystemic shunts: comparative histopathologic analysis in humans and swine. *J Vasc Interv Radiol*; 7:487–497.

107. **Sanyal AJ, Contos MJ, Yager D, et al., (1998)**: Development of pseudointima and stenosis after transjugular intrahepatic portasystemic shunts: characterization of cell phenotype and function. *Hepatology*; 28: 22–32.

108. **Pattynama PM, van Hoek B and Kool LJ., (1995)**: Inadvertent arteriovenous stenting during transjugular intrahepatic portosystemic shunt procedure and the importance of hepatic artery perfusion. *Cardiovasc Intervent Radiol*; 18:192–195.

109. **Sanyal AJ, Freedman AM, Purdum PP, et al., (1996)**: The hematologic consequences of transjugular intrahepatic portosystemic shunts.

Hepatology; 23:32–39.

110. **Tisnado J, Cho SR, Carithers RL, et al., (1983):** The Budd Chiari syndrome: Angiographic pathologic correlation. *RadioGraphics*, Volume 3, Number 1.

111. **Kwaniewska-Rutczyska A, Bako L, Januszewicz M, et al., (2006):** Budd-Chiari syndrome. Current options in interventional radiology treatment exemplified by three selected cases. *Med Sci Monit;* 12(1): CS 4-12.

112. **Hoffman R, Nimer A, Lanir N, et al., (1999)**: Budd-Chiari syndrome associated with factor V leiden mutation: a report of 6 patients. *Liver Transpl Surg*, 5(2):96-100.

113. **Slakey DP, Klein AS, Venbrux AC, et al., (2001):** Budd-Chiari syndrome: current management options. *Ann Surg*, 233(4):522-527.

114. **Yamada T, Tanaka K, Ogura Y, et al., (2006):** Surgical techniques and long-term outcomes of living donor liver transplantation for Budd-Chiari syndrome. *Am J Transplant*, 6(10):2463-2469.

115. **Darwish Murad S, Plessier A, Hernandez-Guerra M, et al., (2009)**: Etiology, management, and outcome of the Budd-Chiari syndrome. *Ann Intern Med*, 151(3):167-175.

116. **Richter GM, Noeldge G, Palmaz JC, et al., (1990):** The transjugular intrahepatic portosystemic stent-shunt (TIPSS): results of a pilot study. *Cardiovasc Intervent Radiol*, 13(3):200-207.

117. **Zahn A, Gotthardt D, Weiss KH, et al., (2010):** Budd-Chiari Syndrome: Long term success via hepatic decompression using transjugular intrahepatic porto-systemic shunt. *BMC Gastroenterology* 2, 1471-230X-10-25.