

# Chapter 66

## Dermal Hypertrophies and Benign Fibroblastic/Myofibroblastic Tumors

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### REFERENCES

1. Kose O, Waseem A: Keloids and hypertrophic scars: Are they two different sides of the same coin? *Dermatol Surg* **34**:336, 2008
2. Moustafa MF, Abdel-Fattah MA, Abdel-Fattah DC: Presumptive evidence of the effect of pregnancy estrogens on keloid growth. *Plast Reconstr Surg* **44**:564, 1975
3. Alhady SM, Sivanantharajah K: Keloids in various races. A review of 175 cases. *Plast Reconstr Surg* **44**:564, 1969
4. Clark JA et al: Description of familial keloids in five pedigrees: Evidence for autosomal dominant inheritance and phenotypic heterogeneity. *BMC Dermatol* **9**:8, 2009
5. Ehrlich HP et al: Morphological and immunohistochemical differences between keloid and hypertrophic scar. *Am J Pathol* **145**:105, 1994
6. Burd A, Huang L: Hypertrophic response and keloid diathesis: Two very different forms of scar. *Plast Reconstr Surg* **116**:150e, 2005
7. Kelly AP: Update on the management of keloids. *Semin Cutan Med Surg* **28**:71, 2009
8. Al-Daraji WI: Cutaneous lobomycosis: A delayed diagnosis. *Am J Dermatopathol* **30**:575, 2008
9. Wriston CC et al: Nodular scleroderma: A report of 2 cases. *Am J Dermatopathol* **30**:385, 2008
10. Kauer F, Simon JC, Sticherling M: Nodular morphea. *Dermatology* **218**:63, 2009
11. Breier F et al: Papular xanthoma: A clinicopathologic study of 10 cases. *J Cutan Pathol* **29**:200, 2002
12. Butler PD, Longaker MT, Yang GP: Current progress in keloidal research and treatment. *J Am Coll Surg* **206**:731, 2008
13. Seifert O, Mrowietz U: Keloid scarring: Bench and bedside. *Arch Dermatol Res* **301**:259, 2009
14. Salem A et al: Role of vascular endothelial growth factor in keloids: A clinicopathologic study. *Int J Dermatol* **48**:1071, 2009
15. He S et al: Mechanisms of transforming growth factor beta1/Smad signaling mediated by mitogen-activated protein kinase pathways in keloid fibroblasts. *Br J Dermatol* **162**(3):538-546, 2010, doi 10.1111/j.1365-2133.209.09511.x
16. Felice BD et al: Differential apoptosis markers in human keloids and hypertrophic scar fibroblasts. *Mol Cell Biochem* **327**:191, 2009
17. Rossiello L et al: Differential expression of cyclooxygenases in hypertrophic scar and keloid tissues. *Wound Rep Reg* **17**:750, 2009
18. Tuan TL et al: Adenoviral overexpression and small interfering RNA suppression demonstrate that plasminogen activator inhibitor-1 produces elevated collagen accumulation in normal and keloid fibroblasts. *Am J Pathol* **173**:1311, 2008
19. Imaizumi R et al: Promoted activation of matrix metalloproteinase (MMP)-2 in keloid fibroblasts and increased expression of MMP-2 in collagen bundle regions: Implications for mechanisms of keloid progression. *Histopathology* **54**:722, 2009
20. Castagnoli C et al: The HLA-DR beta 16 allelogroup constitutes a risk factor for hypertrophic scarring. *Hum Immunol* **29**:229-32, 1990
21. Kim A et al: Are keloids really "gli-oids"? High-level expression of gli-1 oncogene in keloids. *J Am Acad Dermatol* **45**:707-11, 2001
22. Castagnoli C et al: TNF production and hypertrophic scarring. *Cell Immunol* **147**:51-63, 1993
23. Dalkowski A et al: Increased expression of tenascin C by keloids in vivo and in vitro. *Br J Dermatol* **141**:50-6, 1999
24. Lim CP et al: Cytokine profiling and Stat3 phosphorylation in epithelial-mesenchymal interactions between keloid keratinocytes and fibroblasts. *J Invest Dermatol* **129**:851-61, 2009
25. Fujiwara M, Muragaki Y, Ooshima A: Upregulation of transforming growth factor-beta 1 and vascular endothelial growth factor in cultured keloid fibroblasts: relevance to angiogenic activity. *Arch Dermatol Res* **297**:161-9, 2005

26. Smith P et al: TGF-beta2 activates proliferative scar fibroblasts. *J Surg Res* 82:319-23, 1999
27. Haisa M, Okochi H, Grotendorst GR: Elevated levels of PDGF alpha receptors in keloid fibroblasts contribute to an enhanced response to PDGF. *J Invest Dermatol* 103:560-3, 1994
28. Nowak KC, McCormick M, Koch RJ: The effect of superpulsed carbon dioxide laser energy on keloid and normal dermal fibroblast secretion of growth factors: a serum-free study. *Plast Reconstr Surg* 105:2039-48, 2000
29. Castagnoli C et al: Characterization of T-cell subsets infiltrating post-burn hypertrophic scar tissues. *Burns* 23:565-72, 1997
30. Ladin DA et al: p53 and apoptosis alterations in keloids and keloid fibroblasts. *Wound Repair Regen* 6:28-37, 1998
31. Wolfram D et al: Hypertrophic scars and keloids—A review of their pathophysiology, risk factors, and therapeutic management. *Dermatol Surg* 35:171, 2009
32. Rosen DJ et al: A primary protocol for the management of ear keloids: Results of excision combined with intraoperative and postoperative steroid injections. *Plast Reconstr Surg* 120:1395, 2007
33. Zaccaria E, Rebori A, Rongioletti F: Multiple eruptive dermatofibromas and immunosuppression: Report of two cases and review of the literature. *Int J Dermatol* 47:723, 2008
34. Chen TC, Kuo T, Chan HL: Dermatofibroma is a clonal proliferative disease. *J Cutan Pathol* 27:36, 2000
35. Hui P et al: Clonal analysis of cutaneous fibrous histiocytoma (dermatofibroma). *J Cutan Pathol* 29:385, 2002
36. Prieto VG et al: Immunohistochemistry of dermatofibromas and benign fibrous histiocytomas. *J Cutan Pathol* 22:336, 1995
37. Kutzner H: Expression of the human progenitor cell antigen CD34 (HPCA-1) distinguishes dermatofibrosarcoma protuberans from fibrous histiocytoma in formalin-fixed, paraffin-embedded tissue. *J Am Acad Dermatol* 28:613, 1993
38. Kaddu S et al: Atypical fibrous histiocytoma of the skin: Clinicopathologic analysis of 59 cases with evidence of infrequent metastasis. *Am J Surg Pathol* 26:35, 2002
39. Gleason BC, Fletcher CDM: Deep "benign" fibrous histiocytoma: Clinicopathologic analysis of 69 cases of a rare tumor indicating occasional metastatic potential. *Am J Surg Pathol* 32:354, 2008
40. Kimyai-Asadi A et al: Cellular, atypical, and indeterminate dermatofibromas: Benign or malignant? *Dermatol Surg* 34:1264, 2008
41. Horenstein MG et al: Indeterminate fibrohistiocytic lesions of the skin: Is there a spectrum between dermatofibroma and dermatofibrosarcoma protuberans? *Am J Surg Pathol* 24:996, 2000
42. Colome-Grimmer MI, Evans HL: Metastasizing cellular dermatofibroma. Report of two cases. *Am J Surg Pathol* 20:1361, 1996
43. Guillou L et al: Metastasizing fibrous histiocytoma of the skin: A clinicopathologic and immunohistochemical analysis of three cases. *Mod Pathol* 13:654, 2000
44. Zelger BG, Sidoroff A, Zelger B: Combined dermatofibroma: Co-existence of two or more variant patterns in a single lesion. *Histopathol* 36:529, 2000
45. De la Torre C et al: Acrochordons are not a component of the Birt-Hogg-Dube syndrome: Does this syndrome exist? Case reports and review of the literature. *Am J Dermatopathol* 22:293, 2000
46. Chiritescu E, Maloney ME: Acrochordons as a presenting sign of nevoid basal cell carcinoma syndrome. *J Am Acad Dermatol* 44:789, 2001
47. Roach ES, Gomez MR, Northrup H: Tuberous sclerosis complex consensus conference: Revised clinical diagnostic criteria. *J Child Neurol* 13:624, 1998
48. Trauner MA, Ruben BS, Lynch PJ: Segmental tuberous sclerosis presenting as unilateral facial angiofibromas. *J Am Acad Dermatol* 49:S164, 2003
49. Schaffer JV et al: Multiple facial angiofibromas: A cutaneous manifestation of Birt-Hogg-Dube syndrome. *J Am Acad Dermatol* 53:S108, 2005
50. Darling TN et al: Multiple facial angiofibromas and collagenomas in patients with multiple endocrine neoplasia type I. *Arch Dermatol* 133:853, 1997
51. Ashgarian B et al: Cutaneous tumors in patients with multiple endocrine neoplasm type 1 (MEN1) and gastrinomas: Prospective study of frequency and development of criteria with high sensitivity and specificity for MEN1. *J Clin Endocrinol Metab* 89:5328, 2004
52. Elifritz J, Krishnan RS, Donnelly H: Numerous fibrous papules of the face unassociated with any genodermatosis. *DOJ* 13:12, 2007
53. Assmann A et al: Buschke-Ollendorff syndrome—differential diagnosis of disseminated connective tissue lesions. *Eur J Dermatol* 11:576, 2001

54. Kawamura A et al: Buschke-Ollendorff syndrome: Three generations in a Japanese family. *Ped Dermatol* 22:133, 2005
55. Weintraub R, Pinkus H. Multiple fibrofolliculomas (Birt-Hogg-Dube) associated with a large connective tissue nevus. *J Cutan Pathol* 4:289-299, 1977
56. Prystowsky SD, Maumenee IH, Freeman RG, Herndon JH Jr, Harrod MJ. A cutaneous marker in the Hunter syndrome: a report of 4 cases. *Arch Dermatol*. 113:605, 1977
57. Sidwell RU et al: Connective tissue naevus (collagenoma) in a patient with benign joint hypermobility syndrome (Ehlers-Danlos syndrome type III). *Clin Exp Dermatol* 28:321, 2003
58. Furfaro T: Connective tissue nevi. *Dermatol Nurs* 18:165, 2006
59. Amato L et al: Familial cutaneous collagenoma: Report of an affected family. *Int J Dermatol* 44:315, 2005
60. Henderson RR, Wheeler CE Jr, Abele DC: Familial cutaneous collagenoma. Report of cases. *Arch Dermatol* 98:23, 1968
61. Lips DJ et al: The role of APC and beta-catenin in the aetiology of aggressive fibromatosis (desmoid tumors). *Eur J Canc Surg* 35:3, 2009
62. Johner A et al: Abdominal wall desmoid tumors associated with pregnancy: Current concepts. *Expert Rev Anticancer Ther* 9:1675, 2009
63. Eccles DM et al: Hereditary desmoid disease due to a frameshift mutation at codon 1924 of the APC gene. *Am J Hum Genet* 59:1193, 1996
64. Fallen T et al: Desmoid tumors—a characterization of patients seen at Mayo Clinic 1976–1999. *Familial Canc* 5:191, 2006
65. Sleiffer S: Management of aggressive fibromatosis: Can we unravel the maze of treatment options? *Eur J Canc* 45:2928, 2009
66. Huang K et al: Prognostic factors for extra-abdominal and abdominal wall desmoids: A 20-year experience at a single institution. *J Surg Oncol* 100:563, 2009
67. Meazza C et al: Aggressive fibromatosis in children and adolescents: The Italian experience. *Cancer* 116(1):233-240, 2010, Doi:10.1002/cncr.24679
68. Patel SR, Benjamin RS: Desmoid tumors respond to chemotherapy: Defying the dogma in oncology. *J Clin Oncol* 24:11, 2006
69. Fetsch JF et al: A clinicopathologic study of 45 pediatric soft tissue tumors with an admixture of adipose tissue and fibroblastic elements, and a proposal for classification as lipofibromatosis. *Am J Surg Pathol* 24:1491, 2000
70. Sharma A et al: Pediatric aggressive fibromatosis of the head and neck: A 20-year retrospective review. *J Ped Surg* 43:1596, 2008
71. Faulkner LB et al: Pediatric desmoid tumor: Retrospective analysis of 63 cases. *J Clin Oncol* 13:2813, 1995
72. Chung EB, Enzinger FM: Infantile myofibromatosis. *Cancer* 48:1807, 1981
73. Wiswell TE et al: Infantile myofibromatosis: The most common fibrous tumor of infancy. *J Pediatr Surg* 23:315, 1988
74. Mentzel T, et al: Infantile haemangiopericytoma versus infantile myofibromatosis. Study of a series suggesting a continuous spectrum of infantile myofibroblastic lesions. *Am J Surg Pathol* 18:922, 1994.
75. Alaggio R et al: Morphologic overlap between infantile myofibromatosis and infantile fibrosarcoma: a pitfall in diagnosis. *Pediatr Dev Pathol* 11:355, 2008.
76. Enzinger FM: Fibrous hamartoma of infancy. *Cancer* 18:241, 1965
77. Dickey GE, Sotelo-Avila C: Fibrous hamartoma of infancy: Current review. *Pediatr Dev Pathol* 2:236, 1999
78. Groisman G, Lichtig C: Fibrous hamartoma of infancy: An immunohistochemical and ultrastructural study. *Hum Pathol* 22:914, 1991
79. Carretto E et al: Fibrous hamartoma of infancy: An Italian multi-institutional experience. *J Am Acad Dermatol* 54:800, 2006
80. Kumar V et al: Bilateral sternocleidomastoid tumor of infancy. *Int J Pediatr Otorhinolaryngol* 67:673, 2003
81. Kurtycz DF et al: Diagnosis of fibromatosis colli by fine-needle aspiration. *Diagn Cytopathol* 23:338, 2000
82. Sharma S, Mishra K, Khanna G: Fibromatosis colli in infants. A cytologic study of eight cases. *Acta Cytol* 47:359, 2003
83. Dabney KW, MacEwen GD, Davis NE: Recurring digital fibrous tumor of childhood: Case report with long term follow up and review of the literature. *J Pediatr Orthop* 6:612, 1986

84. Fringes B et al: Identification of actin microfilaments in the intracytoplasmic inclusions present in recurring infantile digital fibromatosis (Reye tumor). *Pediatr Pathol* 6:311, 1986
85. Horii E, Sugiura Y, Nakamura R: A syndrome of digital fibromas, facial pigmentary dysplasia, and metacarpal and metatarsal disorganization. *Am J Med Genet* 80:1, 1998
86. Allen PW, Enzinger FM: Juvenile aponeurotic fibroma. *Cancer* 26:857, 1970
87. Keasbey LE: Juvenile aponeurotic fibroma (calcifying fibroma); A distinctive tumor arising in the palms and soles of young children. *Cancer* 6:338, 1953
88. Hanks S et al: Mutations in the gene encoding capillary morphogenesis protein 2 cause juvenile hyaline fibromatosis and infantile systemic hyalinosis. *Am J Hum Genet* 73:791, 2003
89. Yayli S et al: A case of juvenile hyaline fibromatosis. *J Dermatol* 33:260, 2006
90. Hanks S et al: Mutations in the gene encoding capillary morphogenesis protein 2 cause juvenile hyaline fibromatosis and infantile systemic hyalinosis. *Am J Hum Genet* 73:791, 2003.
91. Landing BH, Nadorra R: Infantile systemic hyalinosis: Report of four cases of a disease, fatal in infancy, apparently different from juvenile systemic hyalinosis. *Pediatr Pathol* 6:55, 1986
92. Bayat A, McGrouther DA: Management of Dupuytren's disease—Clear advice for an elusive condition. *Ann R Coll Surg Engl* 88:3, 2006
93. Fetsch JF, Laskin WB, Miettinen M: Palmar-plantar fibromatosis in children and preadolescents: A clinicopathologic study of 56 cases with newly recognized demographics and extended follow-up information. *Am J Surg Pathol* 29:1095, 2005
94. Burge P et al: Smoking, alcohol and the risk of Dupuytren's contracture. *J Bone Joint Surg* 79:B206, 1997
95. Shaw RB et al: Dupuytren's disease: History, diagnosis, and treatment. *Plast Reconstr Surg* 120:44e, 2007
96. Pickren JW et al: Fibromatosis of the plantar fascia. *Cancer* 4:846, 1951
97. Dias JJ, Braybrooke J: Dupuytren's contracture: An audit of the outcomes of surgery. *J Hand Surg* 31B:514, 2006
98. Classen DA, Hurst LN: Plantar fibromatosis and bilateral flexion contractures: A review of the literature. *Ann Plast Surg* 28:475, 1992
99. Kadioglu A et al: A retrospective review of 307 men with Peyronie's disease. *J Urol* 168:1075, 2002
100. Bjekic MD et al: Risk factors for Peyronie's disease: A case-control study. *BJU Int* 97:570, 2006
101. Smith JF, Walsh TJ, Lue TF: Peyronie's disease: A critical appraisal of current diagnosis and treatment. *Int J Impot Res* 20:445, 2008
102. Hellstrom WJG: Medical management of Peyronie's disease. *J Androl* 30:397, 2009
103. Fazili T et al: Ten years outcome analysis of corporeal plication for Peyronie's Disease. *Int Urol Nephrol* 39:111, 2006
104. Kopera D, Soyer HP, Kerl H: An update on pachydermodactyly and a report of three additional cases. *Br J Dermatol* 133:433, 1995
105. Bernstein KE, Lattes R: Nodular (pseudosarcomatous) fasciitis, a nonrecurrent lesion: Clinicopathologic study of 134 cases. *Cancer* 49:1668, 1982
106. Kourda J et al: Bilateral elastofibroma dorsii. A case report and review of the literature. *Rev Chir Orthop Traumatol* 95:383, 2009
107. Malghem J et al: Imaging study findings in elastofibroma dorsii. *Joint Bone Spine* 71:536, 2004
108. Baykal C et al: Acquired digital fibrokeratoma. *Cutis* 79:129, 2007
109. Mentzel T, Kutzner H: Dermatomyofibroma: Clinicopathologic and immunohistochemical analysis of 56 cases and reappraisal of a rare and distinct cutaneous neoplasm. *Am J Dermatopathol* 31:44, 2009
110. Kamino H et al: Dermatomyofibroma. A benign cutaneous, plaque-like proliferation of fibroblasts and myofibroblasts in young adults. *J Cutan Pathol* 19:85, 1992
111. Kamino H, Lee JY, Berke A: Pleomorphic fibroma of the skin: A benign neoplasm with cytologic atypia. A clinicopathologic study of eight cases. *Am J Surg Pathol* 13:107, 1989
112. Miettinen M, Fetsch JF: Collagenous fibroma (desmoplastic fibroblastoma): A clinicopathologic analysis of 63 cases of a distinctive soft tissue lesion with stellate-shaped fibroblasts. *Hum Pathol* 29:676, 1998
113. Requena L et al: Cutaneous adult myofibroma: A vascular neoplasm. *J Cutan Pathol* 23:445, 1996
114. Brunnemann RB et al: Extrapleural solitary fibrous tumor: A clinicopathologic study of 24 cases. *Mod Pathol* 12:1034, 1999

115. Snyder MC, Johnson PJ, Hollins RR: Congenital primary cutis verticis gyrata. *Plast Reconstr Surg* **110**:818, 2002
116. Polan S, Butterworth T: Cutis verticis gyrata: A review with report of seven new cases. *Am J Ment Defic* **57**:613, 1953
117. Garden JM, Robinson JK: Essential primary cutis verticis gyrata: Treatment with the scalp reduction procedure. *Arch Dermatol* **120**:1480, 1984
118. Castori M et al: Pachydermoperiostitis: An update. *Clin Genet* **68**:477, 2005

