Skin Tumors and Reactions to Cancer Therapy in Children

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Preface

Although cancer in children is rare, it is the leading cause of death by disease past infancy among children in the United States [1]. Fortunately, therapeutic advancements have improved the outlook of children with cancer, with a decline in cancer mortality rate by more than 50% from 1975–1977 to 2007–2010 [2]. However, with the development of novel anticancer therapies and increase in cancer survivorship, there is a growing need for multidisciplinary care to manage both acute and long-term complications of therapy. Dermatologists play important roles in this care, from the recognition of cutaneous reactions to therapy requiring only symptomatic relief, to the detection of life-threatening secondary skin cancers and treatment side effects.

Cutaneous malignancies are particularly rare in children and thus may pose significant diagnostic or therapeutic dilemmas when encountered. While many skin cancers can be seen across ages, there are special considerations in clinical presentation (e.g., modified ABCDs of pediatric melanoma), risk factors (e.g., genetic predisposition syndromes associated with nonmelanoma skin cancer), and therapeutic response (e.g., phototherapy in cutaneous T cell lymphoma) in children that are important to recognize [3–5]. In addition, there are cutaneous proliferations with uncertain prognosis, such as pityriasis lichenoides chronica, skin-limited Langerhans cell histiocytosis, and cutaneous mastocytosis that demand further attention and research.

Our book strives to address the most pertinent issues that dermatologists face in the care of children with oncologic conditions. We begin by discussing various cutaneous malignancies and tumors with malignant potential. We then focus on acute complications of therapy, including drug reactions, graft-versus-host disease, and opportunistic skin infections. We conclude with a chapter on malignant and nonmalignant late effects of the skin in childhood cancer survivors.

We hope that this book will be a guide for practicing dermatologists on the care of children with oncologic conditions and serve as an impetus for future research and future texts as the important niche of oncodermatology evolves. vi Preface

References

1. Ward E, DeSantis C, Robbins A, Kohler B, Jemal A. Childhood and adolescent cancer statistics, 2014. CA Cancer J Clin. 2014;64(2):83–103.

- 2. Smith MA, Altekruse SF, Adamson PC, Reamon GH, Seibel NK. Declining childhood and adolescent cancer mortality. Cancer. 2014;120(16):2497–506.
- Cordoro KM, Gupta D, Frieden IJ, McCalmont T, Kashani-Sabet M. Pediatric melanoma: results of a large cohort study and proposal for modified ABCD detection criteria for children. J Am Acad Dermatol. 2013;68(6):913–25.
- 4. Khosravi H, Schmidt B, Huang JT. Characteristics and outcomes of non-melanoma skin cancer (NMSC) in children and young adults. J Am Acad Dermatol. 2015;73(5):785–90.
- 5. Boulos S, Vaid R, Aladily TN, Ivan DS, Talpur R, Duvic M. Clinical presentation, immunopathology, and treatment of juvenile-onset mycosis fungoides: a case series of 34 patients. J Am Acad Dermatol. 2014;71(6):1117–26.

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Contents

1	Melanoma and Spitz Nevi in Children Catherine Warner and Melinda Jen	1
2	Congenital Nevi	. 17
3	Lymphoproliferative Disorders of the Skin	. 35
4	Other Proliferative Disorders of the Skin	. 53
5	Malignancy-Associated Genodermatoses	. 65
6	Malignant Soft Tissue Tumors in Children	. 81
7	Cutaneous Reactions to Traditional Chemotherapy and Radiation Therapy. Lucinda L. Kohn and Sonal D. Shah	101
8	Cutaneous Reactions to Targeted Anticancer Agents Sophie Vadeboncoeur and Nicole R. LeBoeuf	139
9	Pediatric Graft-Versus-Host Disease	155
10	Opportunistic Skin Infections in Immunosuppressed Children James Treat and Elizabeth Heller	171
11	Skin Cancer and Other Late Effects of Cancer Therapy Carrie C. Coughlin	187
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