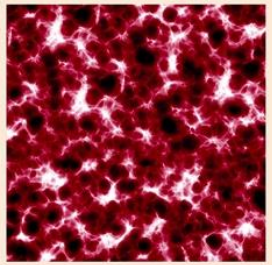
ALMA MATER STUDIORUM
UNIVERSITÀ DI BOLOGNA
DIPARTIMENTO DI MEDICINA SPECIALISTICA
DIAGNOSTICA E SPERIMENTALE

POLICLINICO DI SANT'ORSOLA

SERVIZIO SANITARIO REGIONALE
EMILIA-ROMAGNA
Azienda Ospedaliero - Universitaria di Bologna

2018... 2022
T-Cell Lymphomas: Finally vision and mission!



Breast implant-associated ALCL

Stefano A. Pileri

European Institute of Oncology
Member of the Committee of the Italian Public Health Ministry on BIA-ALCL

Bologna
ROYAL HOTEL CARLTON
October 25-26, 2022

President: **Pier Luigi Zinzani**

Co-President: **Michele Cavo**

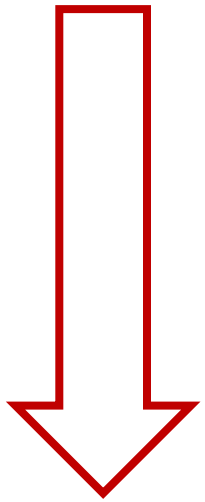
Disclosures

Disclosures of Stefano A. Pileri

Company name	Research support	Employee	Consultant	Stockholder	Speaker bureau	Advisory board	Other
BeiGene						X	
Takeda						X	
Roche					X		
Diatech						X	
Stemline					X		

Chronology

1997: Keech and Creech (PRS; 100:554-5)



2022: ICC and WHO 5th Edition: accepted entity

National Library of Medicine
National Center for Biotechnology Information

Log in

PubMed.gov

breast implant associated anaplastic large cell lymphoma

Search

Advanced Create alert Create RSS User Guide

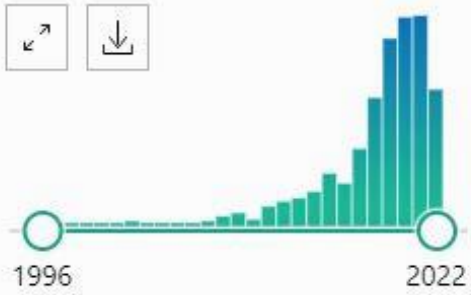
Save Email Send to Sorted by: Publication date Display options

MY NCBI FILTERS

636 results

Page 1 of 64

RESULTS BY YEAR



1

Cite

Share

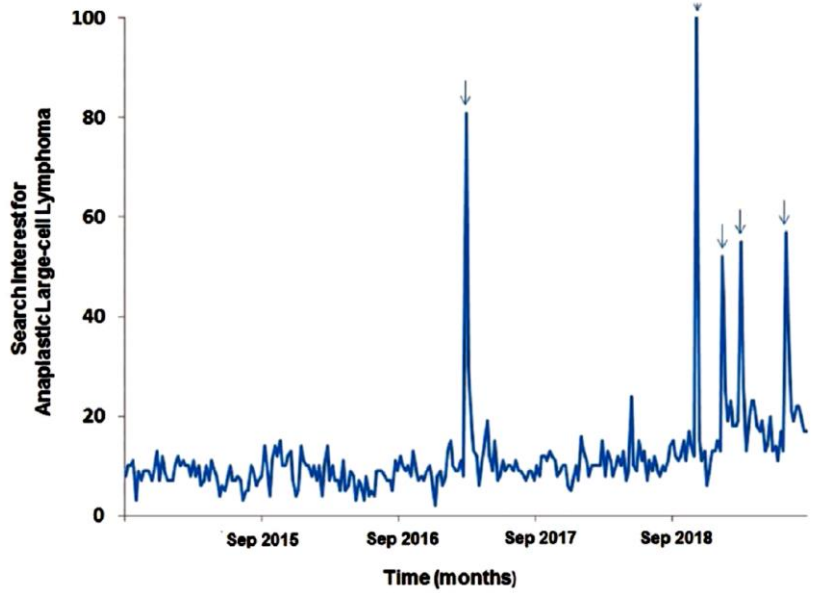
Breast lymphomas, **breast implants** and capsules The timeline of BIA-ALCL with respect to surgical consent: the UK perspective.

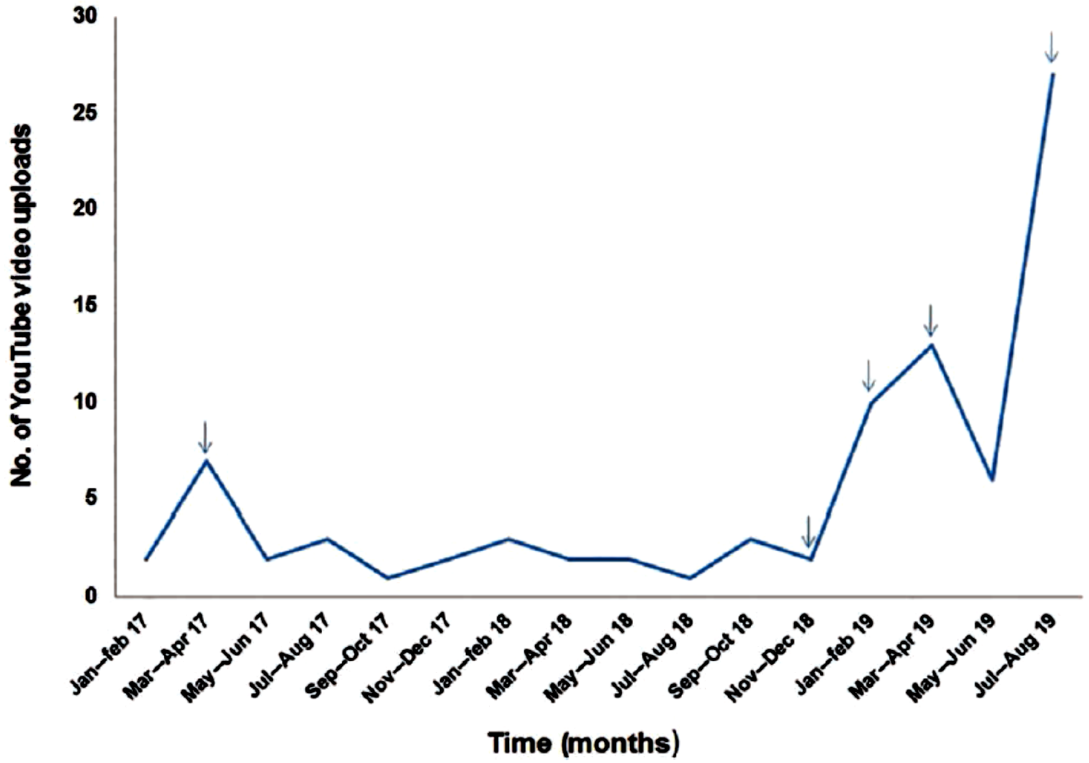
Allison K, Gilmour A.

JPRAS Open. 2022 Jul 11;34:41-50. doi: 10.1016/j.jpra.2022.07.001. eCollection 2022 Dec.

PMID: 36164587 Free PMC article.

Breast Implant-Associated Anaplastic Large Cell Lymphoma (BIA-ALCL) is a rare type of T-**Cell** (non-Hodgkin's) **lymphoma associated** with the use of silicone **breast implants**. Recent widespread awarene





OPEN

PRS GLOBAL OPEN

IDEAS AND INNOVATIONS

Breast

Impact of FDA Updates on Public Interest in Breast Implant-associated Anaplastic Large Cell Lymphoma

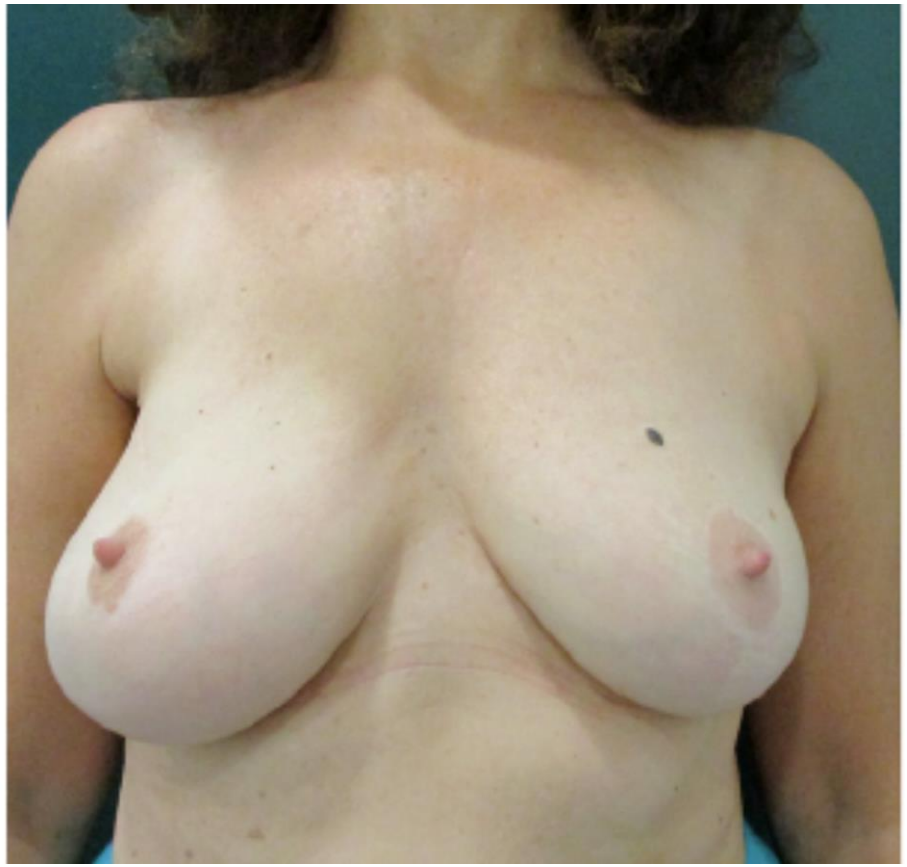
Clinical Features

- Patients: Females (with a few exceptions) with a mean age of 52 yrs. and a history of breast implant following mastectomy for a breast cancer or for cosmetic reasons.

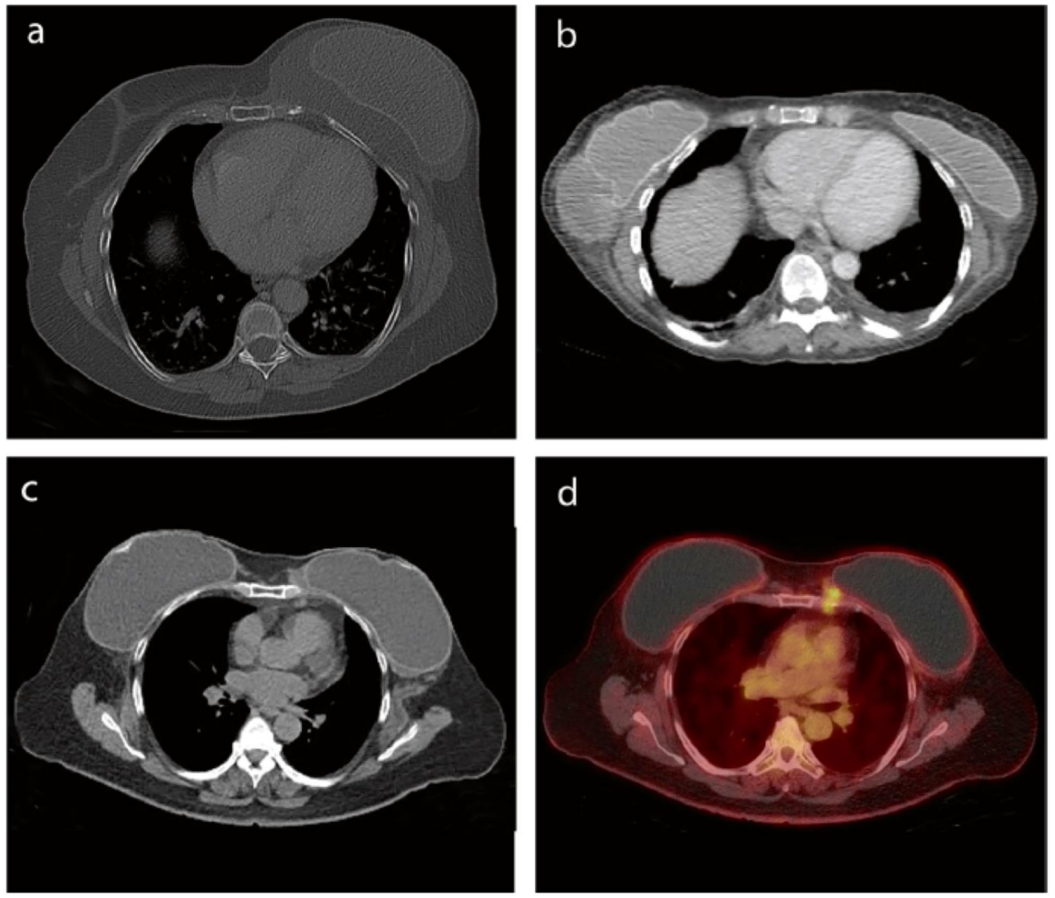
- 80% of patients present with an effusion adjacent to the implant (seroma BIA-ALCL)

- 20% of patients present with a tumour mass (tumour BIA-ALCL)

Laurent C et al. Curr. Opinion Oncol. 2018; 30:292-300.



Marra A et al. Cancer Treat. Rev. 2020; 84:101963.

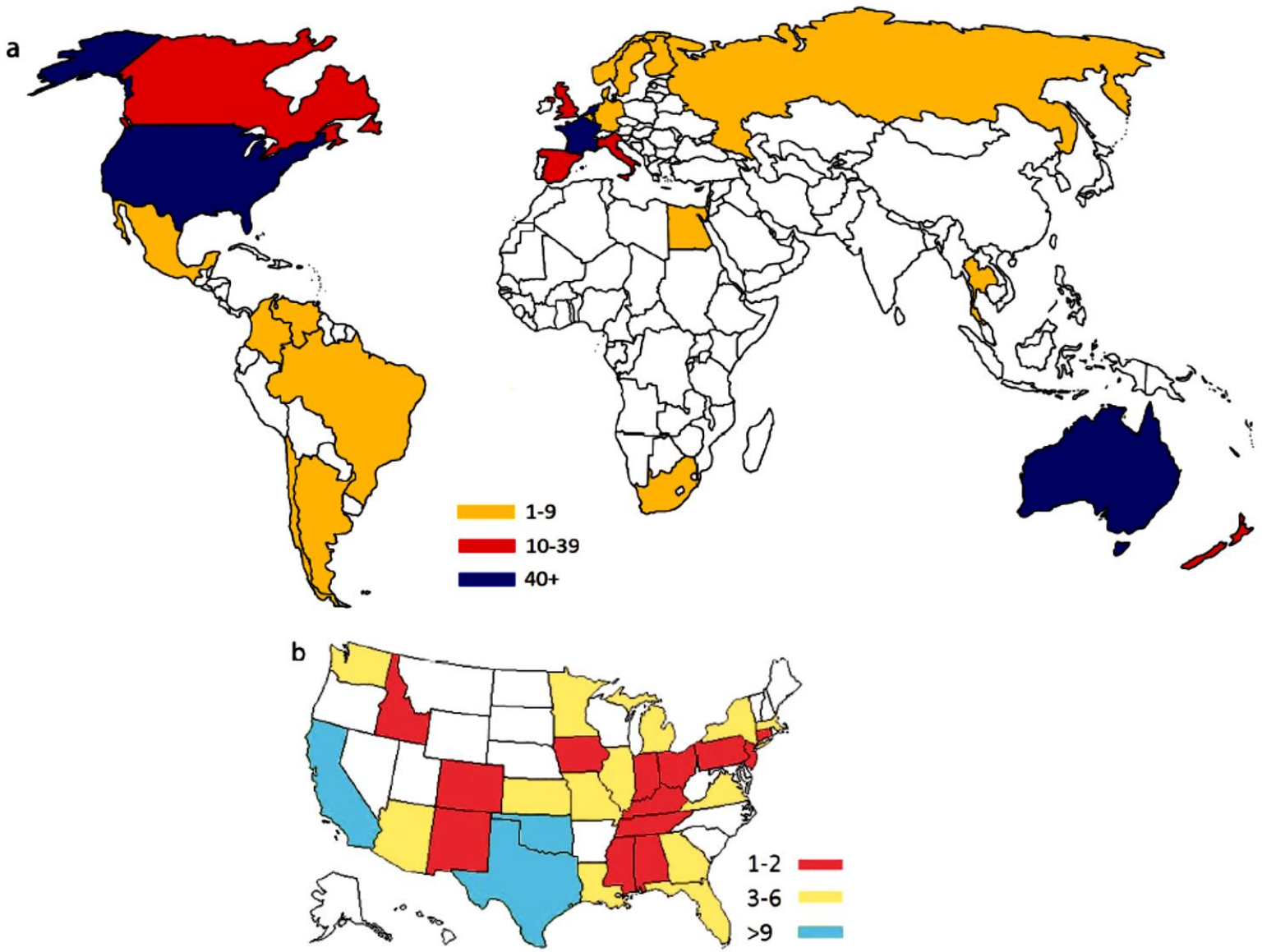


Quesada AE et al. Modern Pathol. 2019; 32:166-88.

Incidence

- Highly variable
- Brody et al.(PRS 2015): 0.01/1000 pts. (Metanalysis)
- Nelson et al. (AJSP 2020): 1.79/1,000 pts. (USA/1 Inst.)
- Cordeiro et al. (JPRAS, 2020): 0.311/1000 pts. (USA/1 Inst.)
- Allison & Gilmour (JPRAS, 2022: about 0.2/1000 pts. (UK)

Years since textured device insertion	Cumulative risk of developing BIA-ALCL
5	0.000
10	0.0024
15	0.0066
20	0.0109



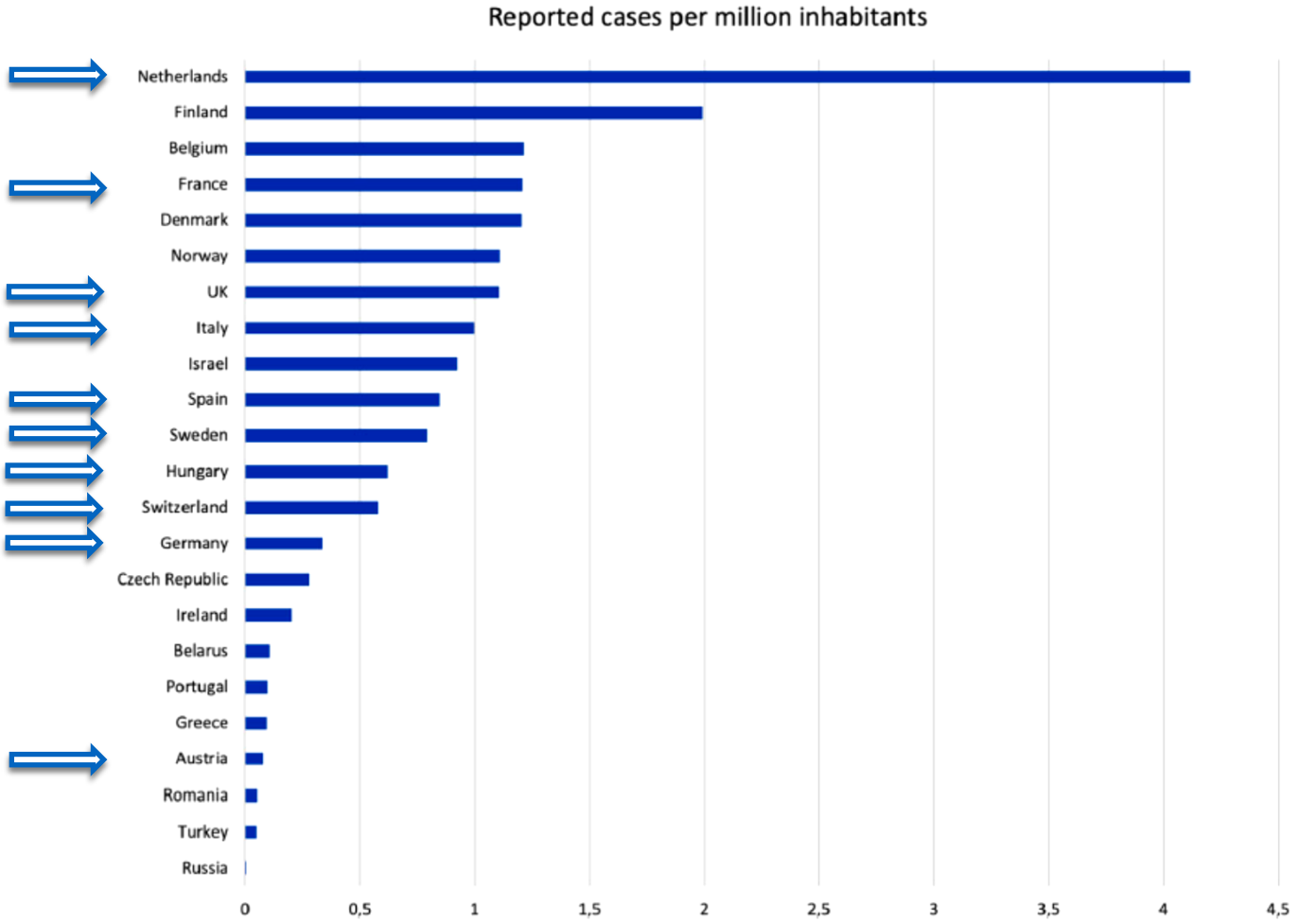
Quesada AE et al. Modern Pathology 2019; 32:166-88.

Aesth Plast Surg (2021) 45:2639–2644
https://doi.org/10.1007/s00266-021-02411-3

ORIGINAL ARTICLE BREAST SURGERY

Considerations on the Demography of BIA-ALCL in European Countries Based on an E(A)SAPS Survey

Birgit Stark[1] · Martin Magnéli[2] · Ivar van Heijningen[3] · Carlos Parreira[4,5] · Urs Bösch[6] · Michel Rouif[7] · Martin Halle[1]



Italian Ministry of Public Health

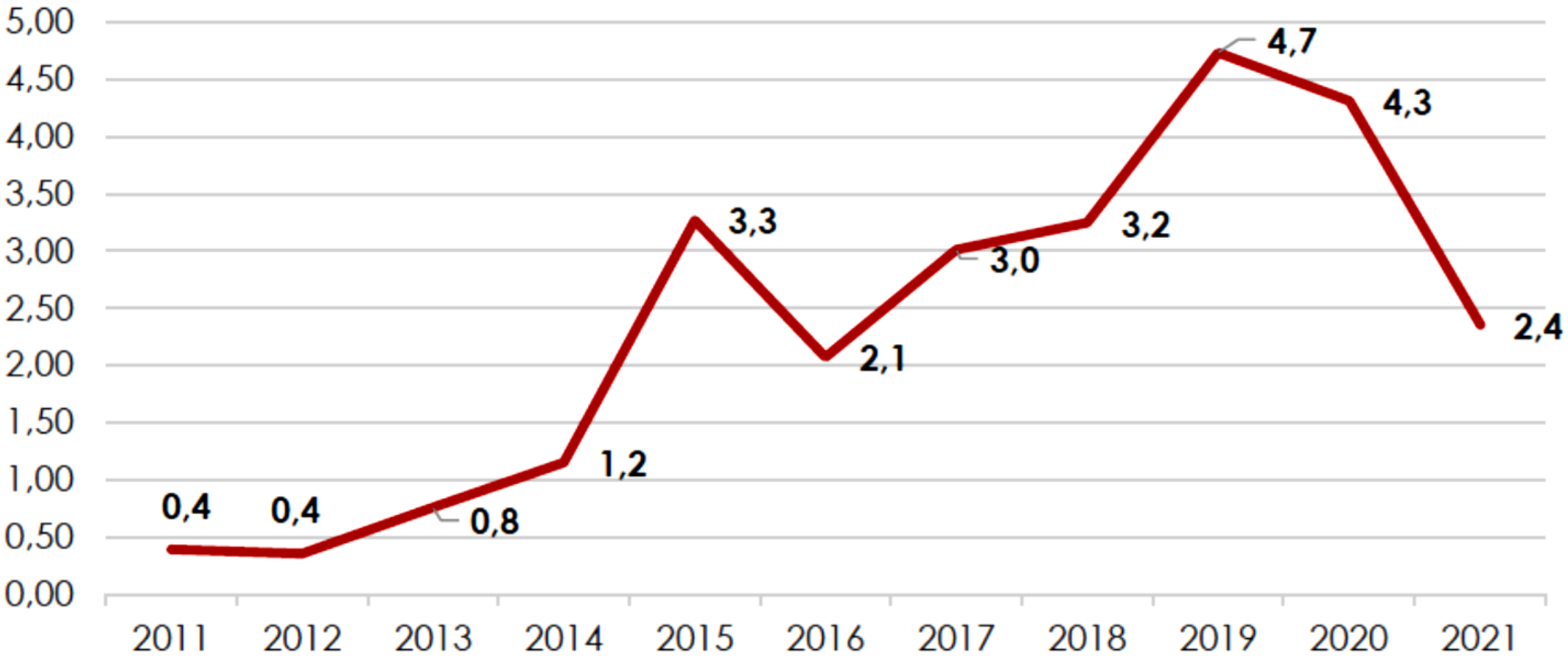
- Registry of implants and BIA-ALCL
- Permanent Commission on BIA-ALCL
- Guidelines for the diagnosis and treatment

- Registered BIA-ALCL cases (January 2010 up to now): 85
- Incidence: 1 case of BIA-ALCL/20,000 subjects, who received an implant (0.2/1,000)
- Lethal cases: 2/85

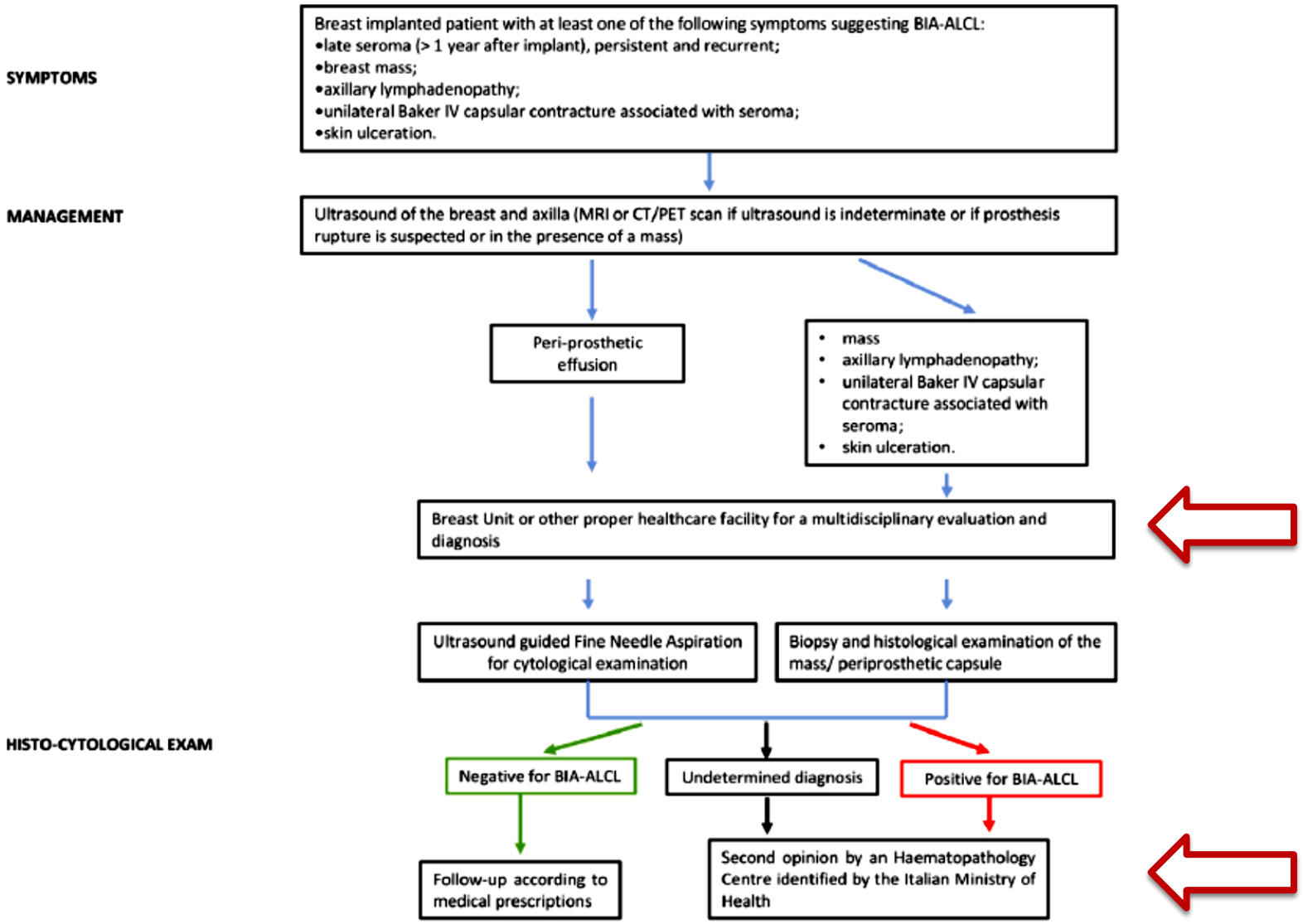
Ministero della Salute

DIREZIONE GENERALE DEI DISPOSITIVI MEDICI EDEL SERVIZIO FARMACEUTICO

Ufficio 5 –Vigilanza sugli incidenti con dispositivi medici



Italian Ministry of Public Health: prevalence per 100,000 patients



Campanale A et al. Eur. J. Cancer2021; 148:277-86.

VOLUME 34 · NUMBER 2 · JANUARY 10, 2016

JOURNAL OF CLINICAL ONCOLOGY

ORIGINAL REPORT

Complete Surgical Excision Is Essential for the Management of Patients With Breast Implant–Associated Anaplastic Large-Cell Lymphoma

Mark W. Clemens, L. Jeffrey Medeiros, Charles E. Butler, Kelly K. Hunt, Michelle A. Fanale, Steven Horwitz, Dennis D. Weisenburger, Jun Liu, Elizabeth A. Morgan, Rashmi Kanagal-Shamanna, Vinita Parkash, Jing Ning, Aliyah R. Sohani, Judith A. Ferry, Neha Mehta-Shah, Ahmed Dogan, Hui Liu, Nora Thormann, Arianna Di Napoli, Stephen Lade, Jorge Piccolini, Ruben Reyes, Travis Williams, Colleen M. McCarthy, Summer E. Hanson, Loretta J. Nastoupil, Rakesh Gaur, Yasuhiro Oki, Ken H. Young, and Roberto N. Miranda

Purpose
Breast implant–associated anaplastic large-cell lymphoma (BI-ALCL) is a rare type of T-cell lymphoma that arises around breast implants. The optimal management of this disease has not been established. The goal of this study is to evaluate the efficacy of different therapies used in patients with BI-ALCL to determine an optimal treatment approach.

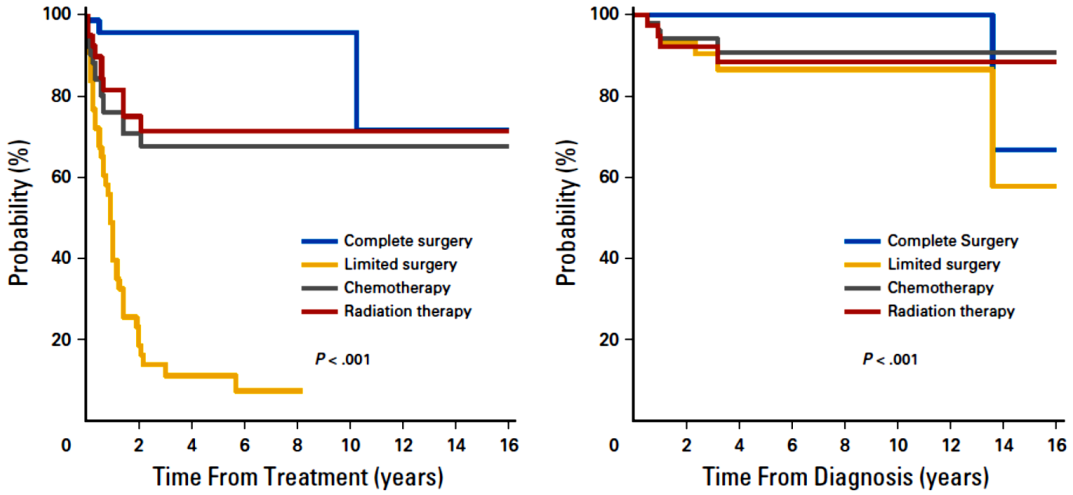
Patients and Methods
In this study, we applied strict criteria to pathologic findings, assessed therapies used, and conducted a clinical follow-up of 87 patients with BI-ALCL, including 50 previously reported in the literature and 37 unreported. A Prentice, Williams, and Peterson model was used to assess the rate of events for each therapeutic intervention.

Results
The median and mean follow-up times were 45 and 30 months, respectively (range, 3 to 217 months). The median overall survival (OS) time after diagnosis of BI-ALCL was 13 years, and the OS rate was 93% and 89% at 3 and 5 years, respectively. Patients with lymphoma confined by the fibrous capsule surrounding the implant had better event-free survival (EFS) and OS than did patients with lymphoma that had spread beyond the capsule ($P = .03$). Patients who underwent a complete surgical excision that consisted of total capsulectomy with breast implant removal had better OS ($P = .022$) and EFS ($P = .014$) than did patients who received partial capsulectomy, systemic chemotherapy, or radiation therapy.

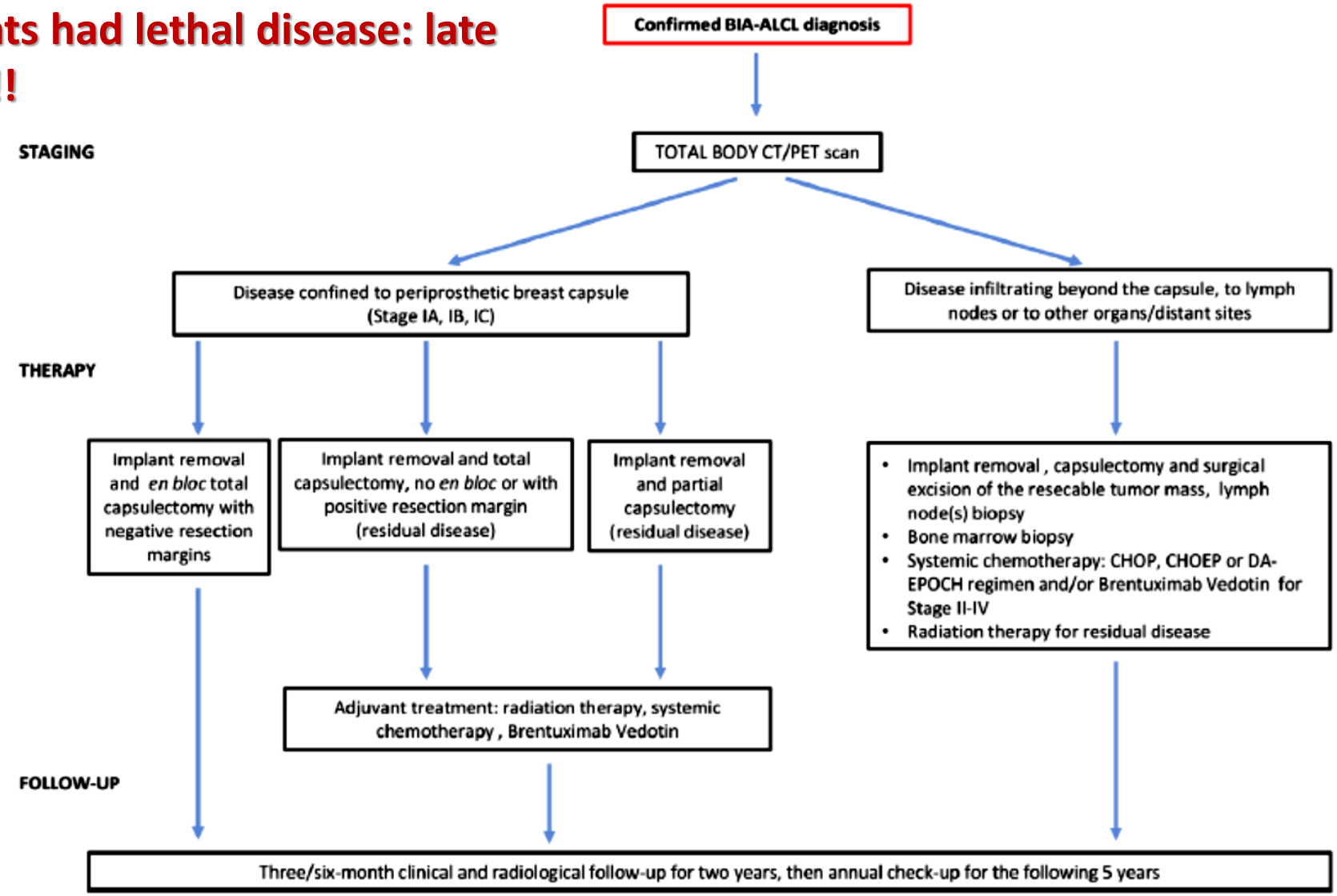
Conclusion
Surgical management with complete surgical excision is essential to achieve optimal EFS in patients with BI-ALCL.

Table 1. Proposed TNM Staging for Breast Implant–Associated Anaplastic Large-Cell Lymphoma

TNM or Stage Designation	Description
T: tumor extent	
T1	Confined to effusion or a layer on luminal side of capsule
T2	Early capsule infiltration
T3	Cell aggregates or sheets infiltrating the capsule
T4	Lymphoma infiltrates beyond the capsule
N: lymph node	
N0	No lymph node involvement
N1	One regional lymph node (+)
N2	Multiple regional lymph nodes (+)
M: metastasis	
M0	No distant spread
M1	Spread to other organs/distant sites
Stage	
IA	T1N0M0
IB	T2N0M0
IC	T3N0M0
IIA	T4N0M0
IIB	T1-3N1M0
III	T4N1-2M0
IV	TanyNanyM1



2/85 patients had lethal disease: late diagnoses!!!



Campanale A et al. Eur. J. Cancer2021; 148:277-86.

The Crucial Role of Surgical Treatment in BIA-ALCL Prognosis in Early- and Advanced-Stage Patients

Antonella Campanale, M.D.
Alessandra Spagnoli, Ph.D.
Lucia Lispi, S.D.
Rosaria Boldrini, S.D.
Marcella Marletta, M.D.

Rome, Italy

PATIENT SAFETY

Background: Studies on breast implant-associated anaplastic large cell lymphoma (BIA-ALCL) are trying to optimize medical and surgical treatments for early and advanced stages of this disease. The aim of this article is to share the experience gathered on the authors' prospectively collected 46 well-documented cases.

Methods: Italian physicians are obliged to report BIA-ALCL cases to the Italian Ministry of Health. Because of this cooperation with health care professionals, the competent authority has coordinated and centralized the collection of information for each patient in 46 cases of BIA-ALCL. Statistical analyses with cumulative incidence and corresponding 95 percent confidence interval are provided for each year, dividing the number of new cases that occurred in a defined year and the population at risk of experiencing BIA-ALCL during the same year.

Results: The mean time to the onset of symptoms is reduced to 6.4 ± 3.77 years (range, 1 to 22 years). Increased knowledge has also shortened the average time to diagnosis, at 7.2 ± 3.71 years (range, 2 to 22 years). A late seroma appears in 91 percent of cases. The patient who died underwent limited surgery. The Italian incidence has been estimated as 2.8 per 100,000 patients receiving implants (95 percent CI, 0.88 to 4.84) in 2015; 2.1 (95 percent CI, 0.43 to 3.86) in 2016; 3.2 (95 percent CI, 1.11 to 5.31) in 2017; and 3.5 (95 percent CI, 1.36 to 5.78) in 2018.

Conclusion: Although the number of cases has risen slightly, BIA-ALCL is still a rare disease with a stable incidence, easily recognized and with a favorable prognosis also in advanced stages if complete surgical excision is performed. (*Plast. Reconstr. Surg.* 146: 530e, 2020.)

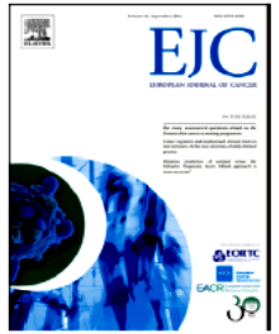
Campanale A et al. Eur. J. Cancer2021; 148:277-86.

European Journal of Cancer 148 (2021) 277–286

Available online at www.sciencedirect.com

ScienceDirect

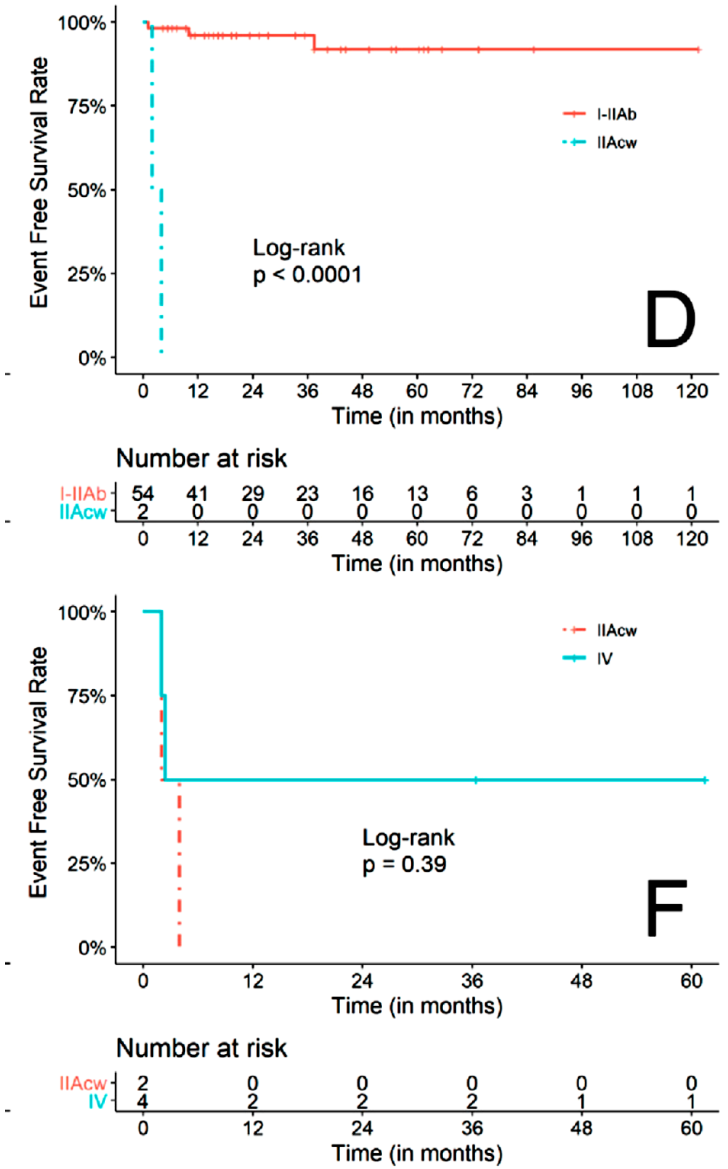
journal homepage: www.ejcancer.com



Original Research

Chest wall infiltration is a critical prognostic factor in breast implant-associated anaplastic large-cell lymphoma affected patients

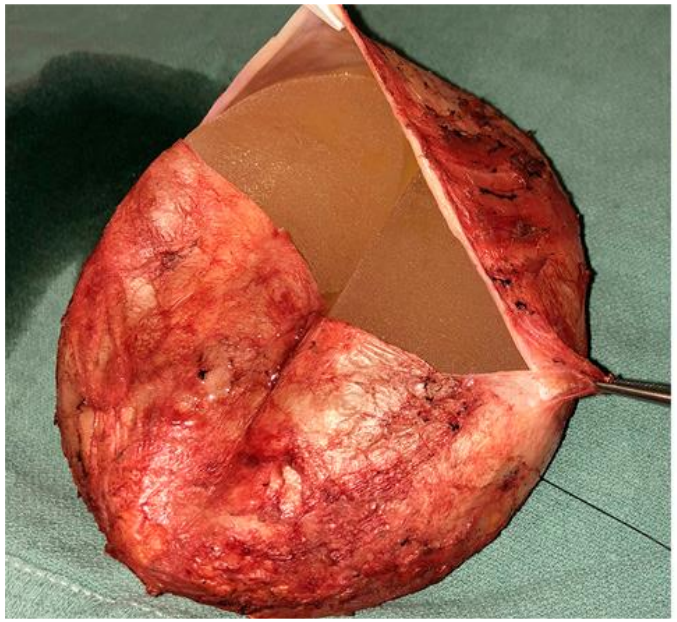
Antonella Campanale [a,b], Arianna Di Napoli [b,c], Marco Ventimiglia [a], Stefano Pileri [b,d], Daniela Minella [a], Giuseppe Curigliano [b,e,f,*], Maurizio Martelli [b,g], Roy De Vita [b,h], Paola Di Giulio [b,i], Marco Montorsi [b,j], Paolo Veronesi [b,f,k], Silvia Giordano [b,l], Achille Iachino [a,b], Lucia Lispi [a,b]

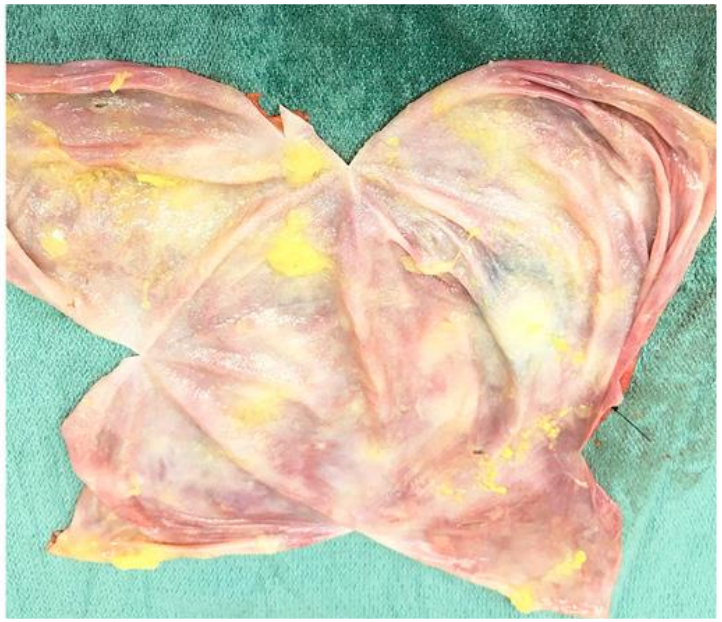


Campanale A et al. Eur. J. Cancer2021; 148:277-86.

Sampling

- Seroma: fine needle aspiration with cytology and phenotyping
- En bloc removal: sampling of the oriented capsule by ordered sections (two scenarios: no mass, presence of a mass)
- Fragments of the capsule and pericapsular tissue: complete sampling
- Lymph node examination





Jaffe ES et al. JCO 2020; 38:1102-11. Best practice guidelines

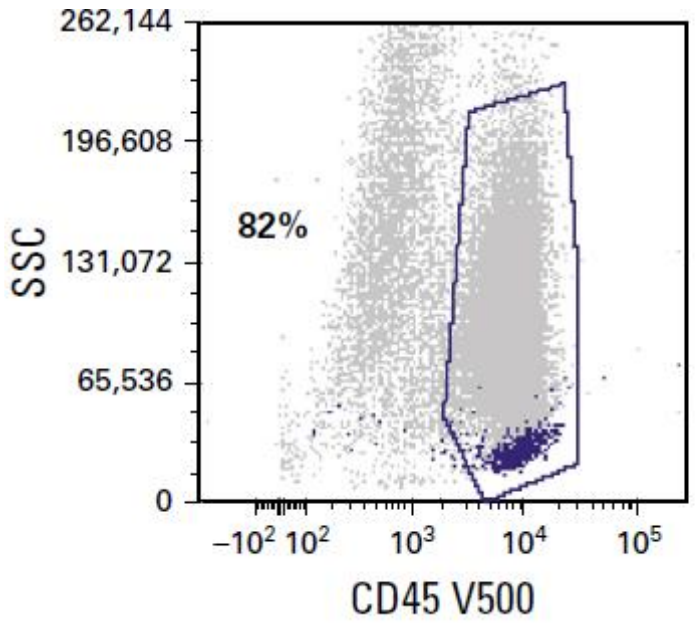
Morphology & Phenotype

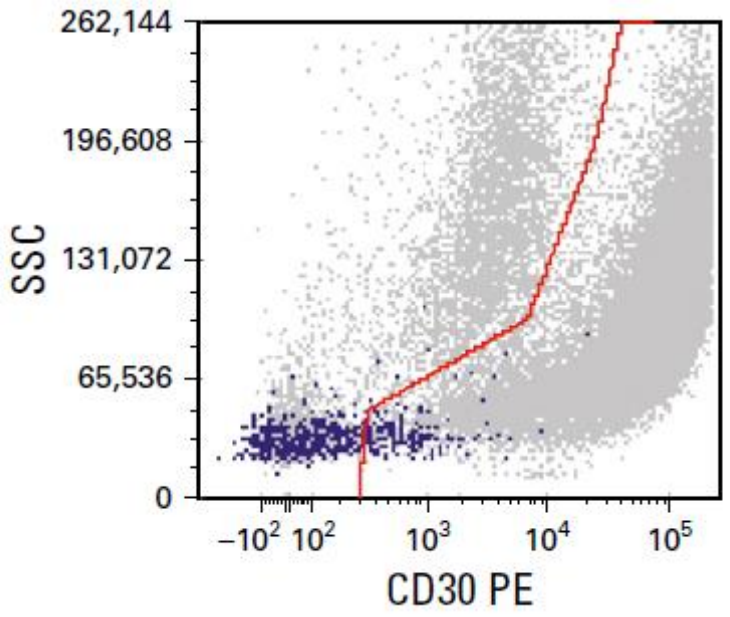
- Typical hallmark cells
- CD30-positivity of most if not all cells
- EMA-positivity
- Variable defectivity of T-cell associated antigens
- Cytotoxic profile
- IRF4-positivity (unrelated to *DUSP22* rear.)
- ALK-negativity
- PAX5/BSAP negativity
- EBV negativity

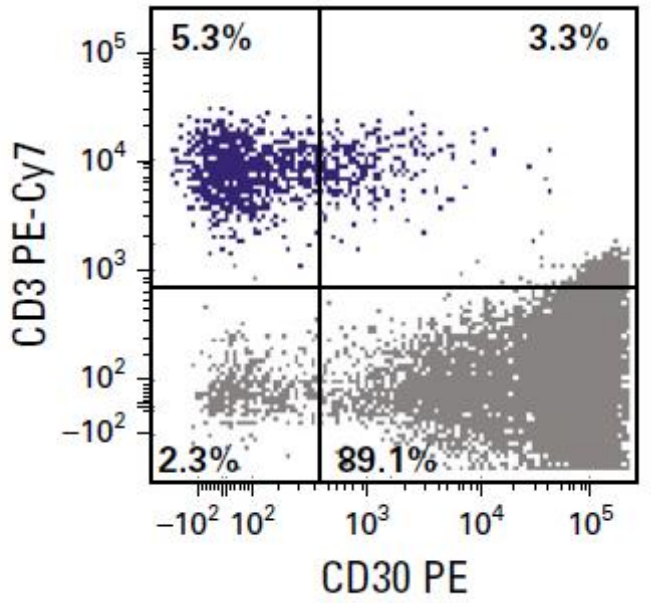
TRB ($n = 12$)	5	41.7
TRG ($n = 34$)	26	76.5

Marra A et al. Cancer Treat. Rev. 2020; 84:101963.

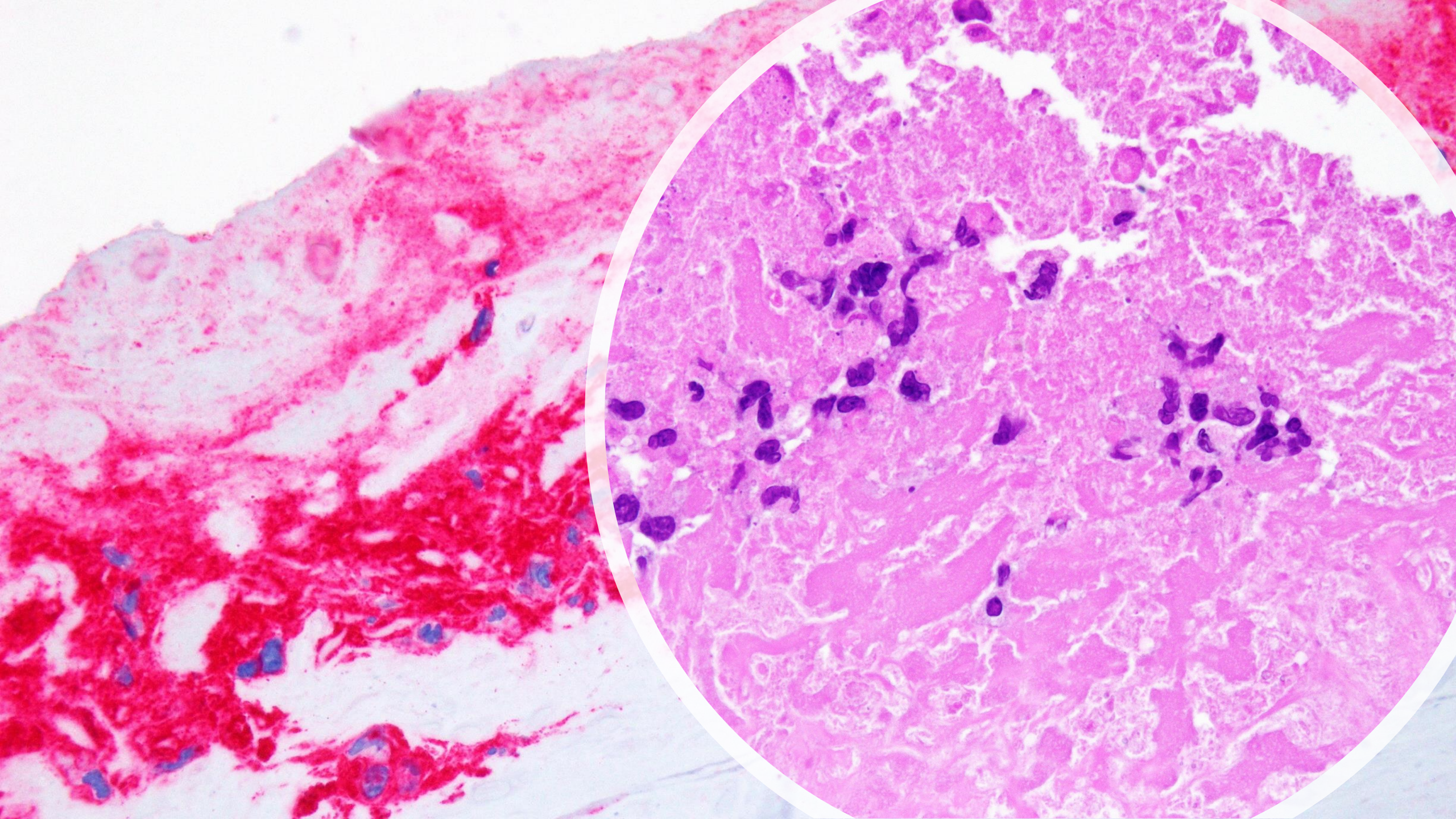
Quesada EA et al. Modern Pathol. 2019; 32:166-8.

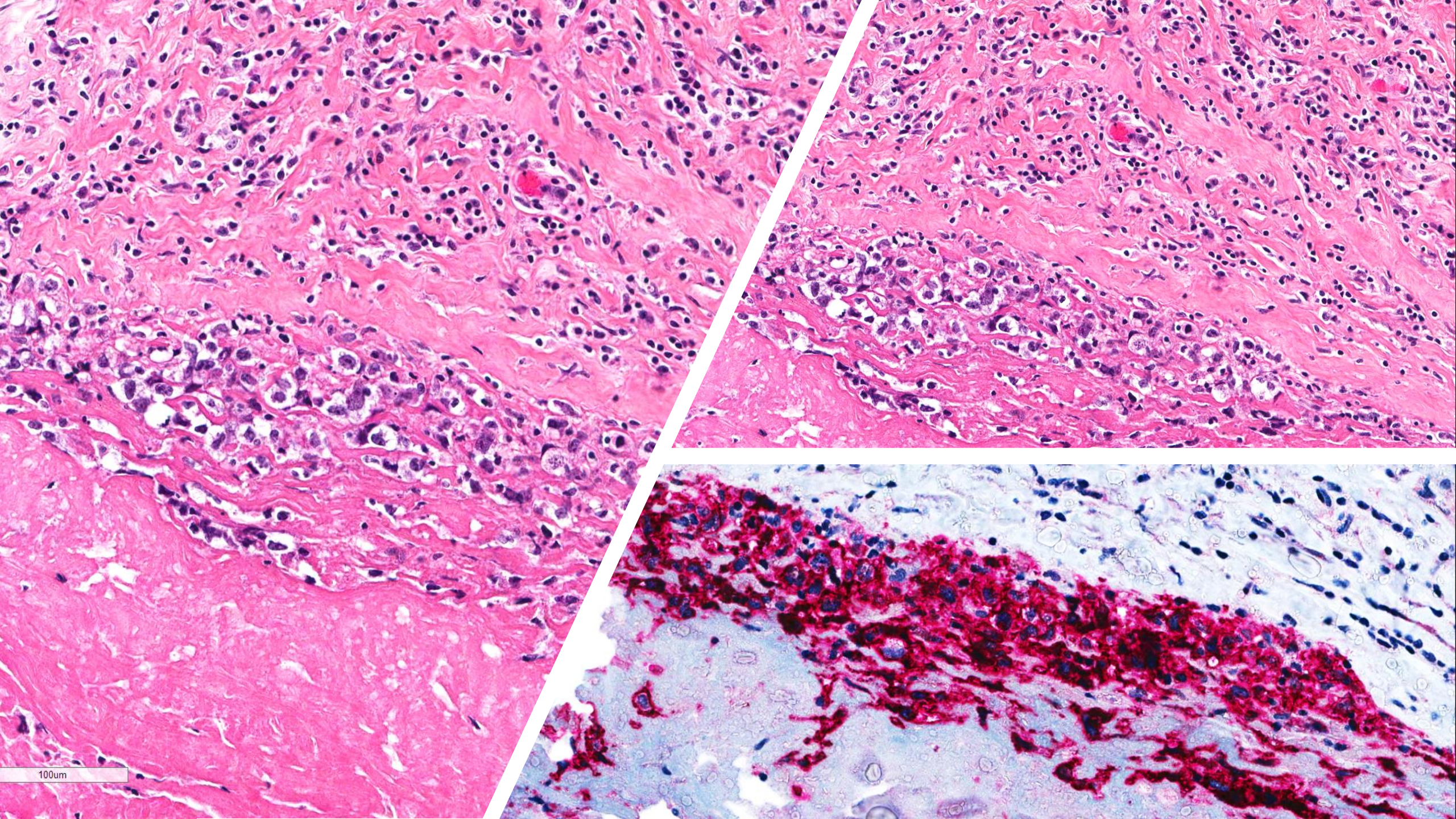


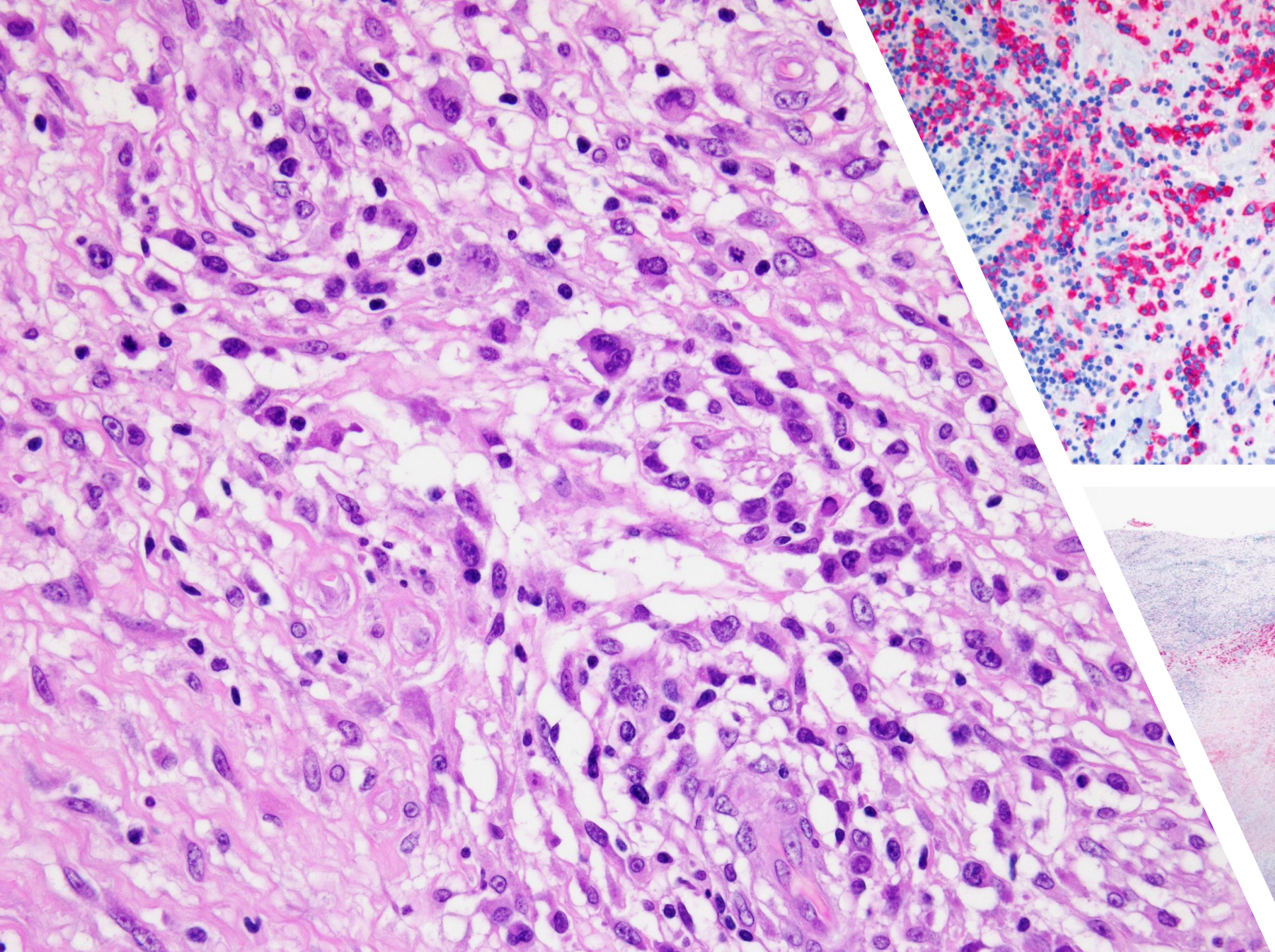


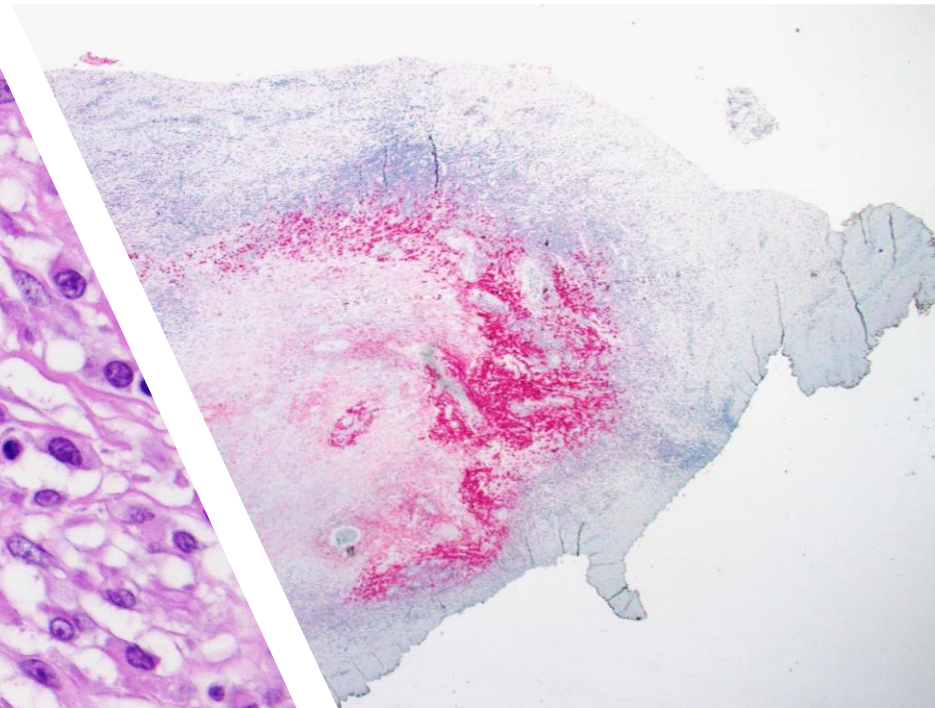


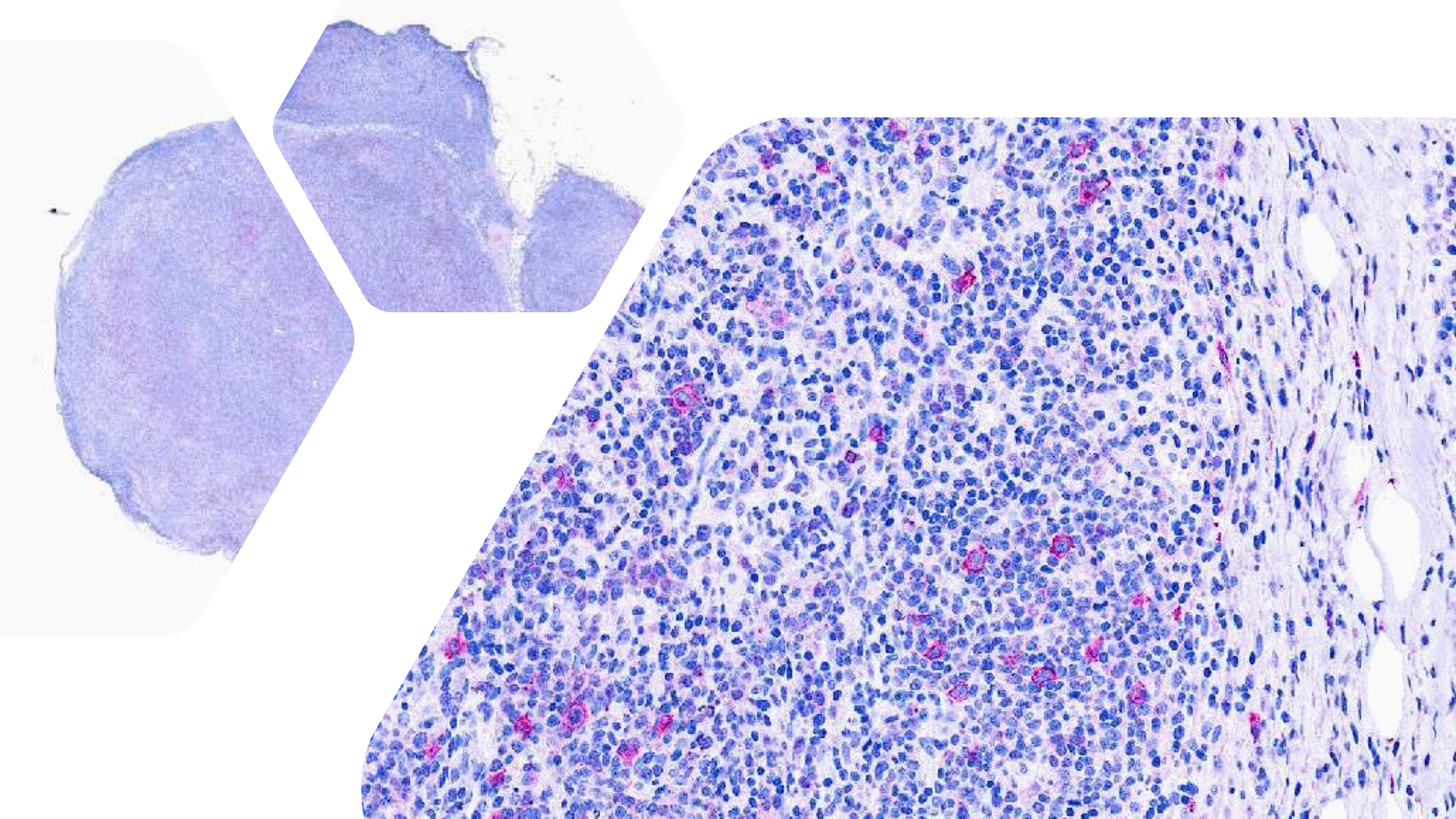
Jaffe ES et al. JCO 2020; 38:1102-11.




100um



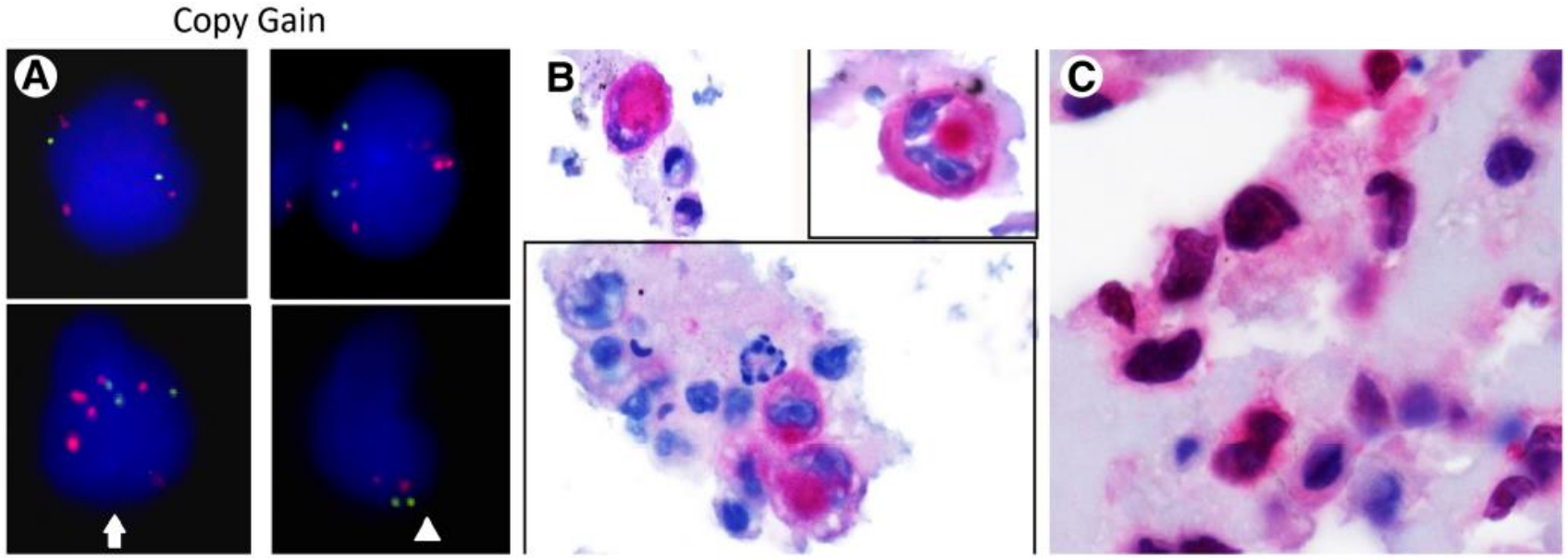




Hum Pathol. 2019 Aug;90:60-69

Recurrent PDL1 expression and PDL1 (CD274) copy number alterations in breast implant-associated anaplastic large-cell lymphomas

Valentina Tabanelli, Chiara Corsini, Stefano Fiori, Claudio Agostinelli, Angelica Calleri, Stefania Orecchioni, Federica Melle, Giovanna Motta, Anna Rotili, Arianna Di Napoli, Stefano A. Pileri



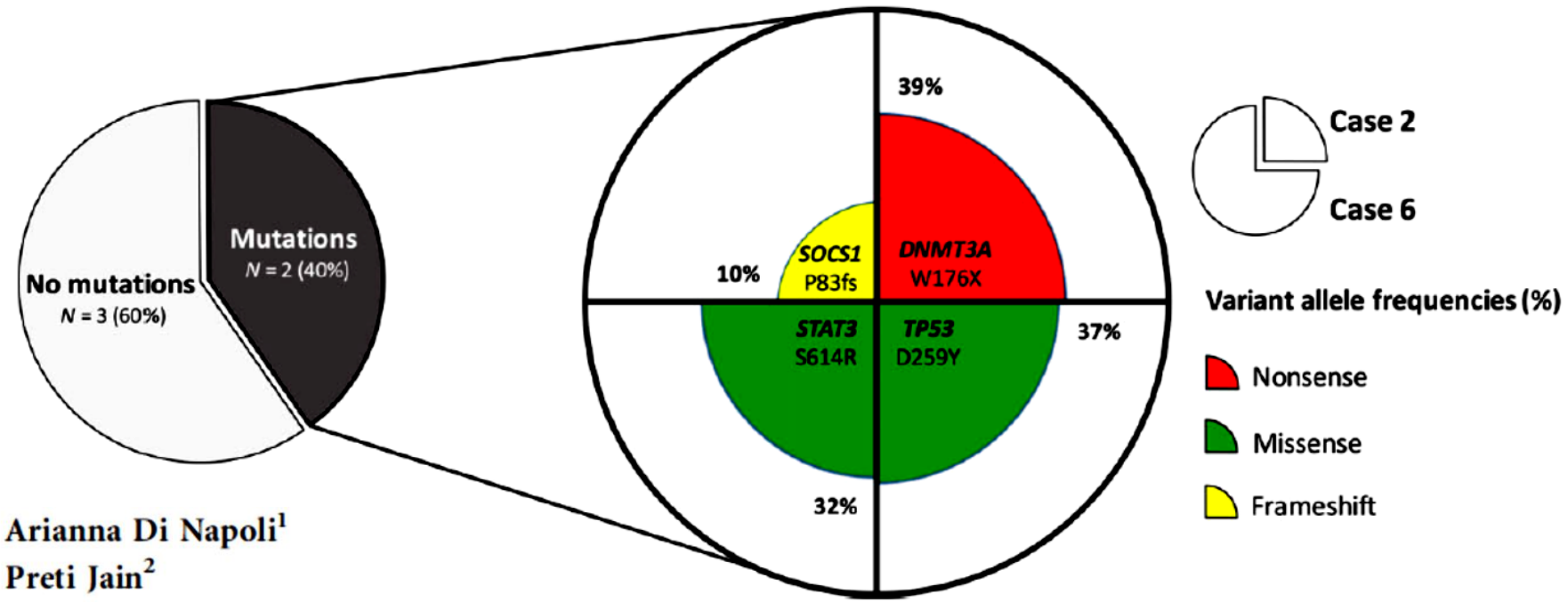
Reference	Karyotype
George EV et al. [70]	45, XX [cp19]dup(X)(q11q28),+1, del(1)(q32), i(1)(q10), add(3)(p11), der(3), t(2;3)(p12;p26), +6, der(6)t(6;8)(q12;q21.3)x2, add(8)(q11.2), add(11)(q23), add(14)(p11.1), -15, -17, -20, 80~91, idem [cp2]
Alobeid B et al. [48]	116–123,55N4,XX,71, add(1)(p36.3),i(1)(q10),hsr(1)(q21q25),þ2,þ362, þ6,hsr(7)(q32q35)62,i(8)(q10),þ9,þ10, inv(11)(p15.1q22.1)63,add(12)(q24.1),713,714,715,i(17)(q10),þ19,720,þ1*8mar[cp13]/46,XX,inv(11)(p15.1q22.1)[7].
Lechner MG et al. [75]	48,XX, = add(2)(q21),dup(2)(q31q35),add(5)(p13),del(10)(p11.2p13), + der(?12)t(12;17)(q13;q21),-16,-20, + mar1-2[5]
Lechner MG et al. [75]	76 < 3 N > ,XXX, + 1, + 2,der(4)t(1;4)9q42;q25),der(4)t(4;4)9p16;q31.3), + 5, + der(6)t(6;13)(q13;q22),der(7)t(7;19)(p13;q13.4)t(16;19)(q22;?q13.1)?trp(19)(q13.1q13.4),del(8)(p21p23), + del(10)(p11.2p13)x1 or x2, der(15)t(9;15)(p13;p11.2)x2, + 17,18,t(18;20)(q11.2;q13.1),der(19)t(18;19)(q21.3;q13.1)[23]
Lechner MG et al. [75]	81,3n.,XXX, + der(X)t(X;11)(q28;p14),del(1)(q21),der(1)del(1)(p13p34)inv(1)(p13q42)t(1;6)(q42;p23), + 2, + 5,der(6)t(1;6)(q42;p23),der(7)t(7;1)(q32;p32)t(1;2)(p36.3;p23), + der(7)t(7;1)(q32;p23), + der(7)t(7;1)(q32;p23)dup(1)(p32p36.3)t(1;2)(p36.3;p23),del(8)(q21q22),der(8)inv(8)(p21q11.2)dup(8)(q11.2q13)x2, + der(8)t(6; (karyotype cuts off), also + 10, + 11, + der12, -16, + 19, -20, + der20, + 21 × 2 (based on images of G-banded metaphases)
Hart AM et al. [76]	Complex; no details

Harrop et al. Cancers 2021; 13:4921.

	Gene rearrangements		
Reference	Method	*DUSP22*	*TP63*
Oishi et al[7]	FISH + IHC	0/36	0/36
Letourneau et al[6]	FISH	0/1	0/1
Blombery et al[3]			
Laurent et al[5]	FISH	0/9	
Di Napoli et al[4]			
Total		0/46	0/37

Oishi N et al. Aesth. Surg. J. 2019; 39:S14-S20.

Targeted next generation sequencing of breast implant-associated anaplastic large cell lymphoma reveals mutations in JAK/STAT signalling pathway genes, *TP53* and *DNMT3A*



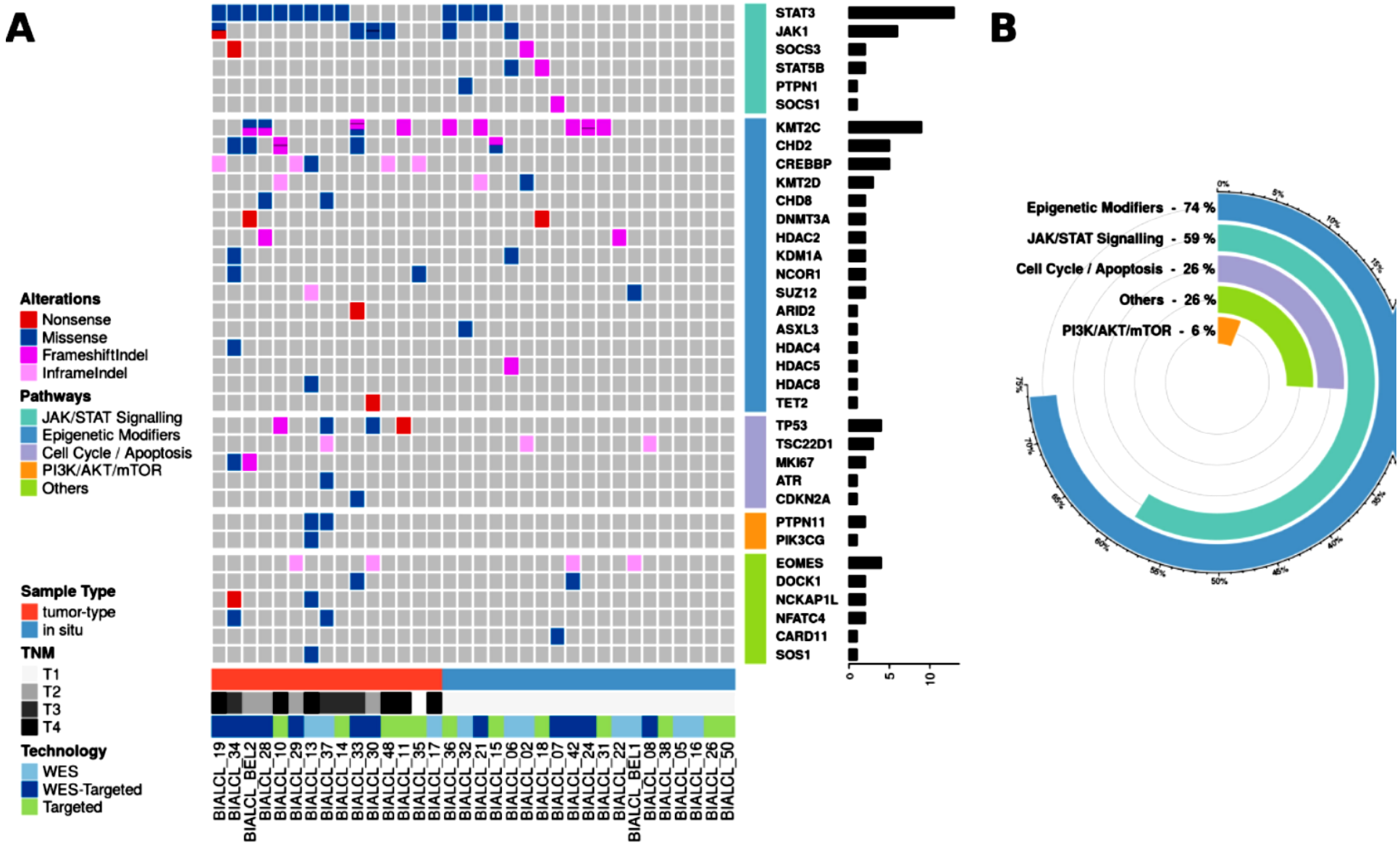
Arianna Di Napoli[1]
Preti Jain[2]
Enrico Duranti[1]
Elizabeth Margolskee[2]
Walter Arancio[3]
Fabio Facchetti[4]
Bachir Alobeid[2]
Fabio Santanelli di Pompeo[5]
Mahesh Mansukhani[2]
Govind Bhagat[2]

© 2016 John Wiley & Sons Ltd, *British Journal of Haematology*

Table 1. Summary of key sequence variants reported in BIA-ALCL case-series.

Study	No. of Cases	Methodology	Sequence Variants in JAK/STAT Pathway (% of Patients; Genes Containing Variants)	Sequence Variants in Epigenetic Regulators (% of Patients; Genes Containing Variants)	Other Genes of Interest
Di Napoli et al. [10]	5	Targeted sequencing (465 gene panel)	20% (*SOCS1*, *STAT3*)	20% (*DNMT3A*)	*TP53* (1 case)
Blombery et al. [7]	11	Targeted sequencing (180 gene panel) WES (2 cases)	91% (*JAK2*, *STAT3*)	9% (*SETD2*)	*TP53* (2 cases), *PTPN1* (1)
Oishi et al. [5]	15	Targeted sequencing of *JAK1*, *JAK3*, *STAT3*, *STAT5A*, *STAT5B*	27% (*JAK1*, *STAT3*)	Not assessed	Not assessed
Quesada et al. [9]	9	Targeted sequencing (400 and 199 genes)	78% (*JAK1*, *STAT3*, *SOCS1*, *STAT5B*)	78% (*SMARCB1*, *KDM5C*, *TET2*, *TET3*, *ARID4B*, *KDM6A*, *KMT2C*, *KMT2B*)	*TP53* (1 case), *PIK3CA* (1), *AXIN1* (1), *GNAS* (1)
Laurent et al. [8]	34	WES (22 cases) Targeted sequencing (400 gene panel) (24 cases)	59% (*STAT3*, *JAK1*, *SOCS3*, *STAT5B*, *PTPN1*, *SOCS1*)	74% (*KMT2C*, *CHD2*, *CREBBP*, *KMT2D*, *CHD8*, *DNMT3A*, *KDM1A*, *NCOR1*, *SUZ12*, *ARID2*, *ASXL3*, *HDAC2*, *HDAC4*, *HDAC5*, *HDAC8*, *TET2*)	*TP53* (4 cases), *EOMES* (4), *PTPN11* (2), *PIK3CG* (1), *CDKN2A* (1)
Los-de Vries et al. [11]	29	sWGS (29 cases) WES (7 cases)	43% (3/7 cases) (*STAT3*, *JAK1*)	29% (2/7cases) (*KMT2C*)	*MEF2A* (1 case)

WES, whole exome sequencing; sWGS, shallow whole genome sequencing.

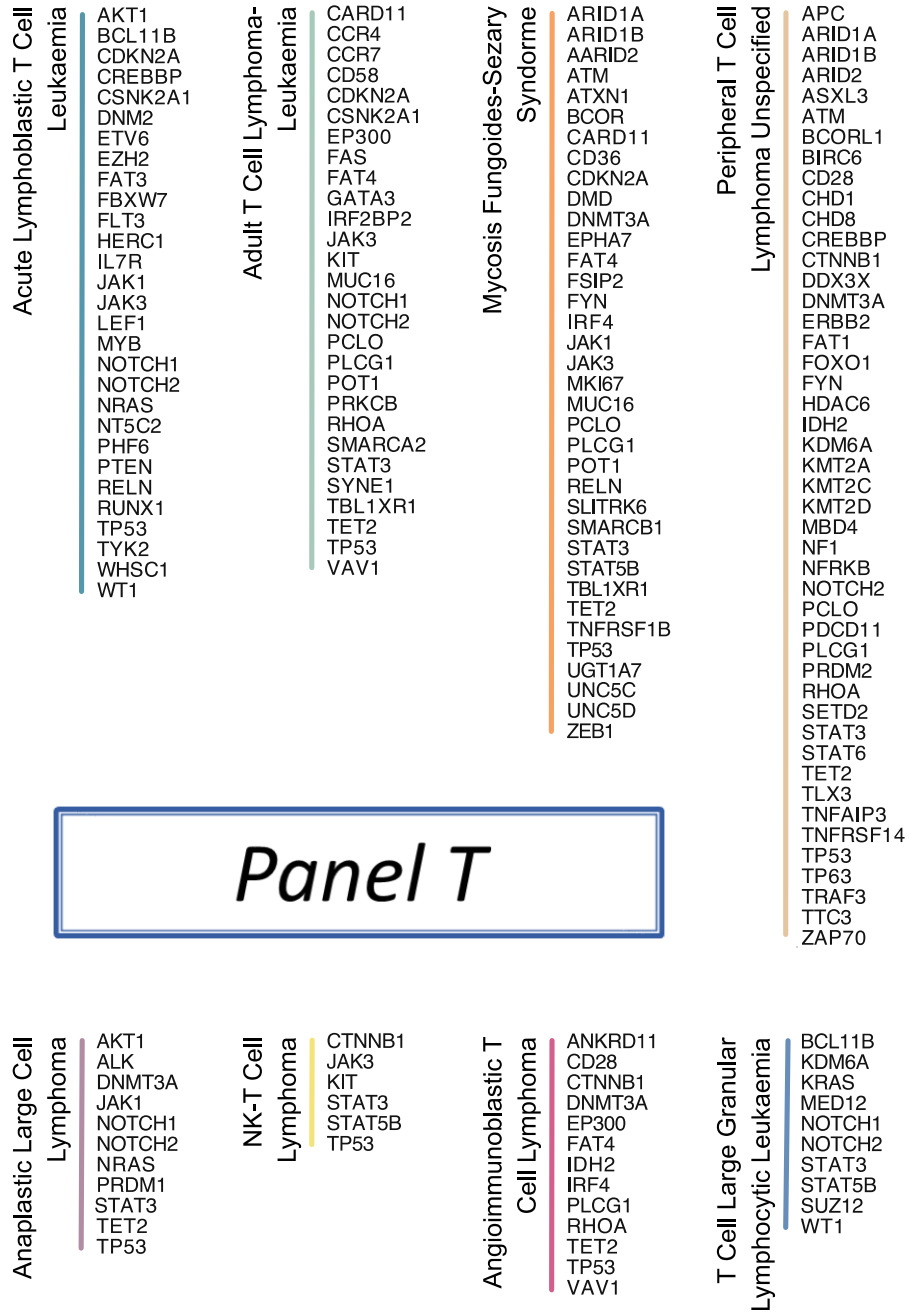

A
Alterations
Nonsense
Missense
FrameshiftIndel
InframeIndel
Pathways
JAK/STAT Signalling
Epigenetic Modifiers
Cell Cycle / Apoptosis
PI3K/AKT/mTOR
Others
Sample Type
tumor-type
in situ
TNM
T1
T2
T3
T4
Technology
WES
WES-Targeted
Targeted
STAT3
JAK1
SOCS3
STAT5B
PTPN1
SOCS1
KMT2C
CHD2
CREBBP
KMT2D
CHD8
DNMT3A
HDAC2
KDM1A
NCOR1
SUZ12
ARID2
ASXL3
HDAC4
HDAC5
HDAC8
TET2
TP53
TSC22D1
MKI67
ATR
CDKN2A
PTPN11
PIK3CG
EOMES
DOCK1
NCKAP1L
NFATC4
CARD11
SOS1
0
5
10
BIALCL_19
BIALCL_34
BIALCL_BEL2
BIALCL_28
BIALCL_10
BIALCL_29
BIALCL_13
BIALCL_37
BIALCL_14
BIALCL_33
BIALCL_30
BIALCL_48
BIALCL_11
BIALCL_35
BIALCL_17
BIALCL_36
BIALCL_32
BIALCL_21
BIALCL_15
BIALCL_06
BIALCL_02
BIALCL_18
BIALCL_07
BIALCL_42
BIALCL_24
BIALCL_31
BIALCL_22
BIALCL_BEL1
BIALCL_08
BIALCL_38
BIALCL_05
BIALCL_16
BIALCL_26
BIALCL_50
B
Epigenetic Modifiers - 74 %
JAK/STAT Signalling - 59 %
Cell Cycle / Apoptosis - 26 %
Others - 26 %
PI3K/AKT/mTOR - 6 %
0%
5%
10%
15%
20%
25%
30%
35%
40%
45%
50%
55%
60%
65%
70%
75%

12 Patients Sequenced with Panel T

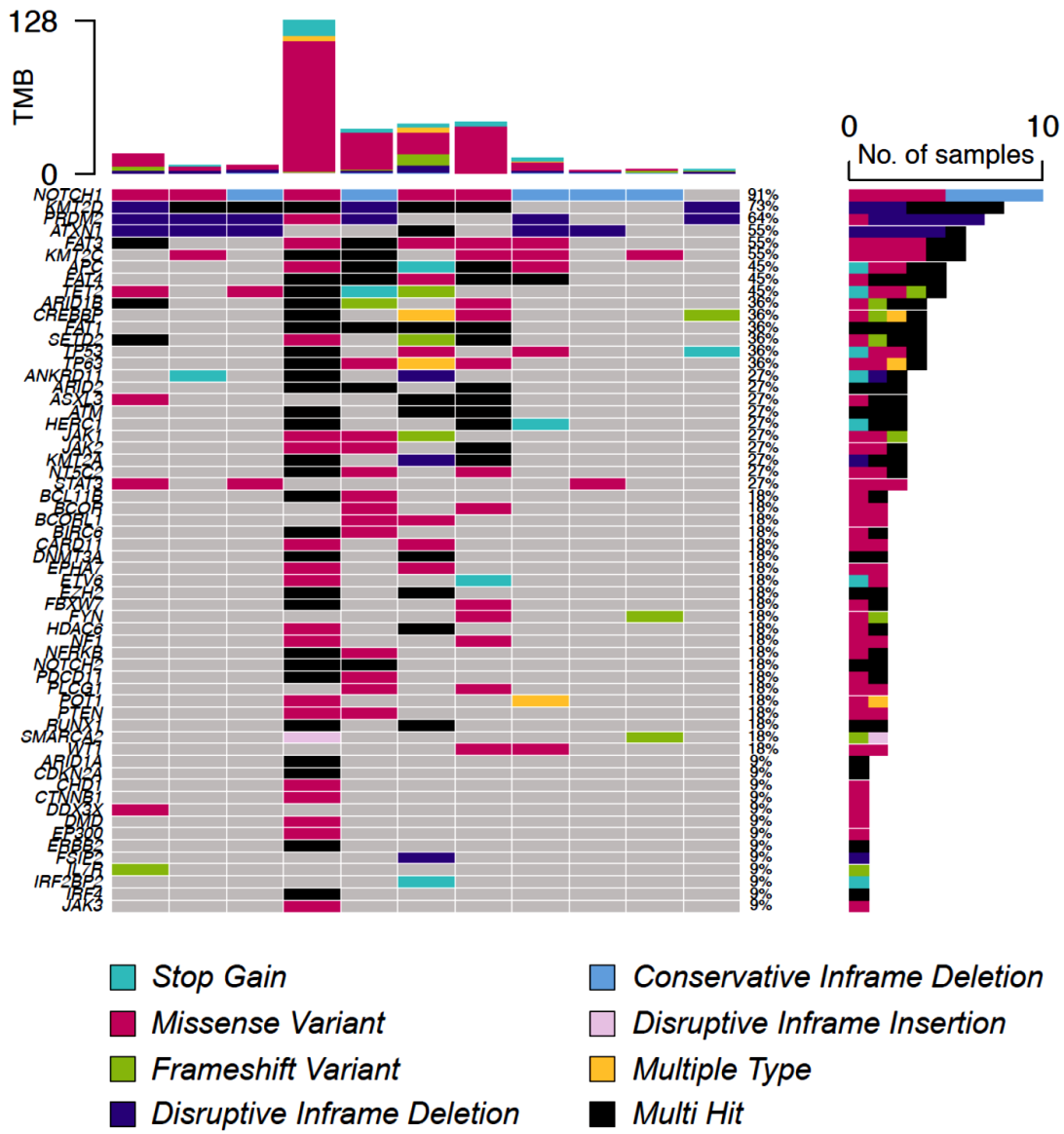
Sample ID	Index	RICHIESTA	NOME PAZIENTE
21-L-2995	**H1**	LINFOCHIP T	BI-ALCL LA-4668
22-L-1574	**A2**	LINFOCHIP T	BI-ALCL LO-GD07
22-L-1580	**B2**	LINFOCHIP T	BI-ALCL LO-BWMM
22-L-1583	**C2**	LINFOCHIP T	BI-ALCL LA-GY4W
21 L 2991	**D2**	LINFOCHIP T	BI-ALCL LA-GB3B
21 L 2994	**E2**	LINFOCHIP T	BI-ALCL C-A2V7
21 L 3028	**F2**	LINFOCHIP T	BI-ALCL LA-MCFK
BI-ALCL TR-7JEW-C	**B6**	LINFOCHIP T	BI-ALCL TR-7JEW-C
BI-ALCL LOTZ2Q-C1	**D6**	LINFOCHIP T	BI-ALCL LOTZ2Q-C1
BI-ALCL VE-D5E2-C	**E6**	LINFOCHIP T	BI-ALCL VE-D5E2-C
BI-ALCL CA-Z28F-C	**F6**	LINFOCHIP T	BI-ALCL CA-Z28F-C
BI-ALCL LO-NMVO-C	**G6**	LINFOCHIP T	BI-ALCL LO-NMVO-C

Filtering criteria:

- Germline Variants
- Variants not annotated or benign in COSMIC
- Annotated in 1000 Genomes Project with minor allele frequency >=0.01
- Variants present in > 7 samples (70%) or with a VAF <1%
- Mutations outside the coding region
- Sequencing errors



This study was supported by the Medical Devices and Pharmaceutical Service General Directorate of the Italian Ministry of Health.



- Oncoplot depicting top 60 mutated genes sorted and ordered by decreasing frequency
- VAF ≥ 1%.

This study was supported by the Medical Devices and Pharmaceutical Service General Directorate of the Italian Ministry of Health.

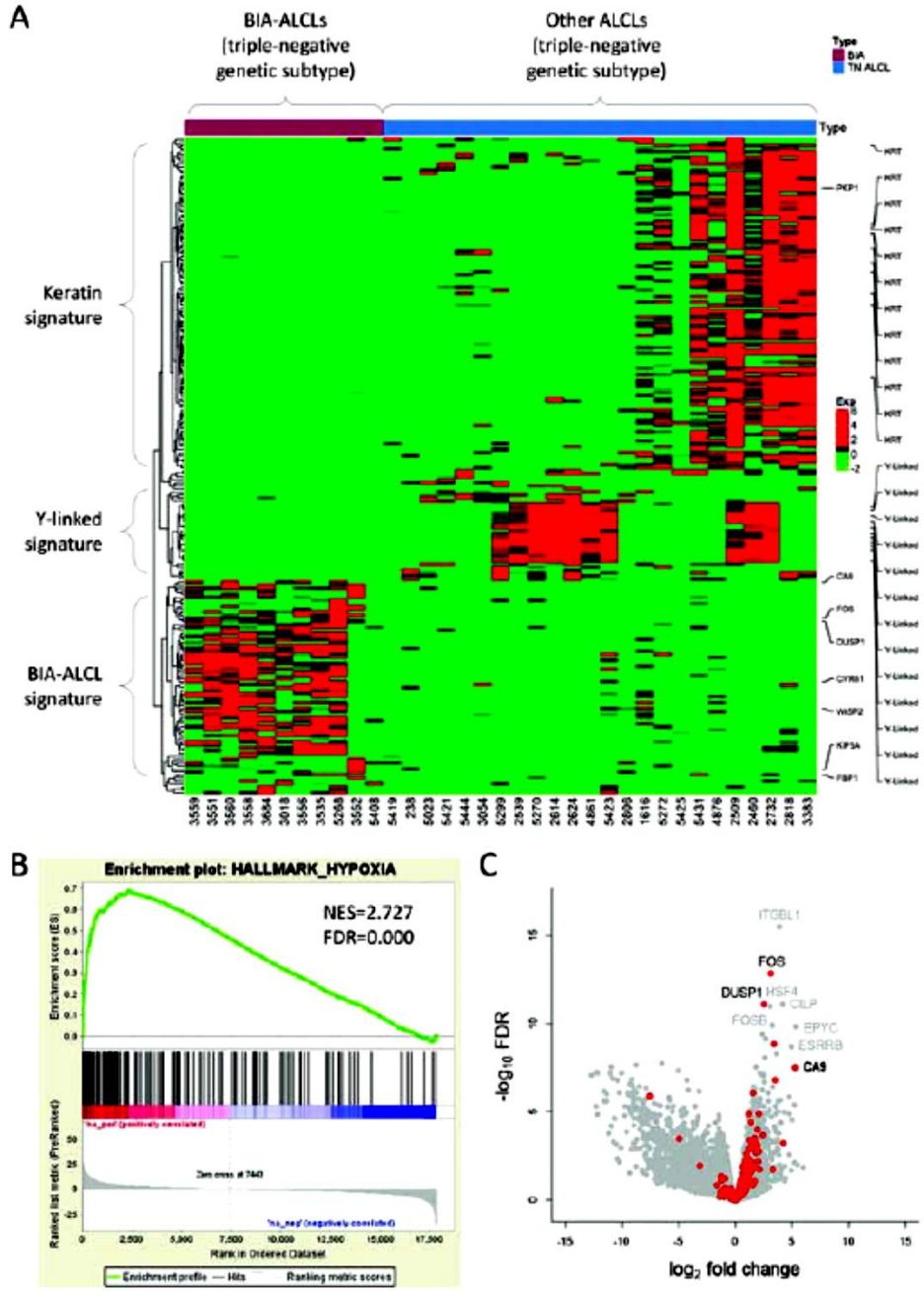
Modern Pathology
https://doi.org/10.1038/s41379-019-0279-8

ARTICLE

Whole exome sequencing reveals mutations in *FAT1* tumor suppressor gene clinically impacting on peripheral T-cell lymphoma not otherwise specified

Maria Antonella Laginestra[1] · Luciano Cascione[2] · Giovanna Motta[3] · Fabio Fuligni[4] · Claudio Agostinelli[1] · Maura Rossi[1] · Maria Rosaria Sapienza[1] · Simona Righi[1] · Alessandro Broccoli[1] · Valentina Indio[5] · Federica Melle[3] · Valentina Tabanelli[3] · Angelica Calleri[3] · Domenico Novero[6] · Fabio Facchetti[7] · Giorgio Inghirami[8] · Elena Sabattini[1] · Francesco Bertoni[2] · Stefano A. Pileri[3]

This study was supported by the Medical Devices and Pharmaceutical Service General Directorate of the Italian Ministry of Health.


A
BIA-ALCLs
(triple-negative
genetic subtype)
Other ALCLs
(triple-negative
genetic subtype)
Type
BIA
TN ALCL
Keratin
signature
Y-linked
signature
BIA-ALCL
signature
B
Enrichment plot: HALLMARK_HYPOXIA
NES=2.727
FDR=0.000
Enrichment score (ES)
Ranked list metric (PreRanked)
Rank in Ordered Dataset
Enrichment profile
Hits
Ranking metric scores
C
ITGBL1
FOS
DUSP1
HSF4
CELP
FOSB
EPYC
ESRRB
CA9
-log10 FDR
log2 fold change

Cancer Immunology, Immunotherapy (2021) 70:1379–1392
https://doi.org/10.1007/s00262-020-02778-3

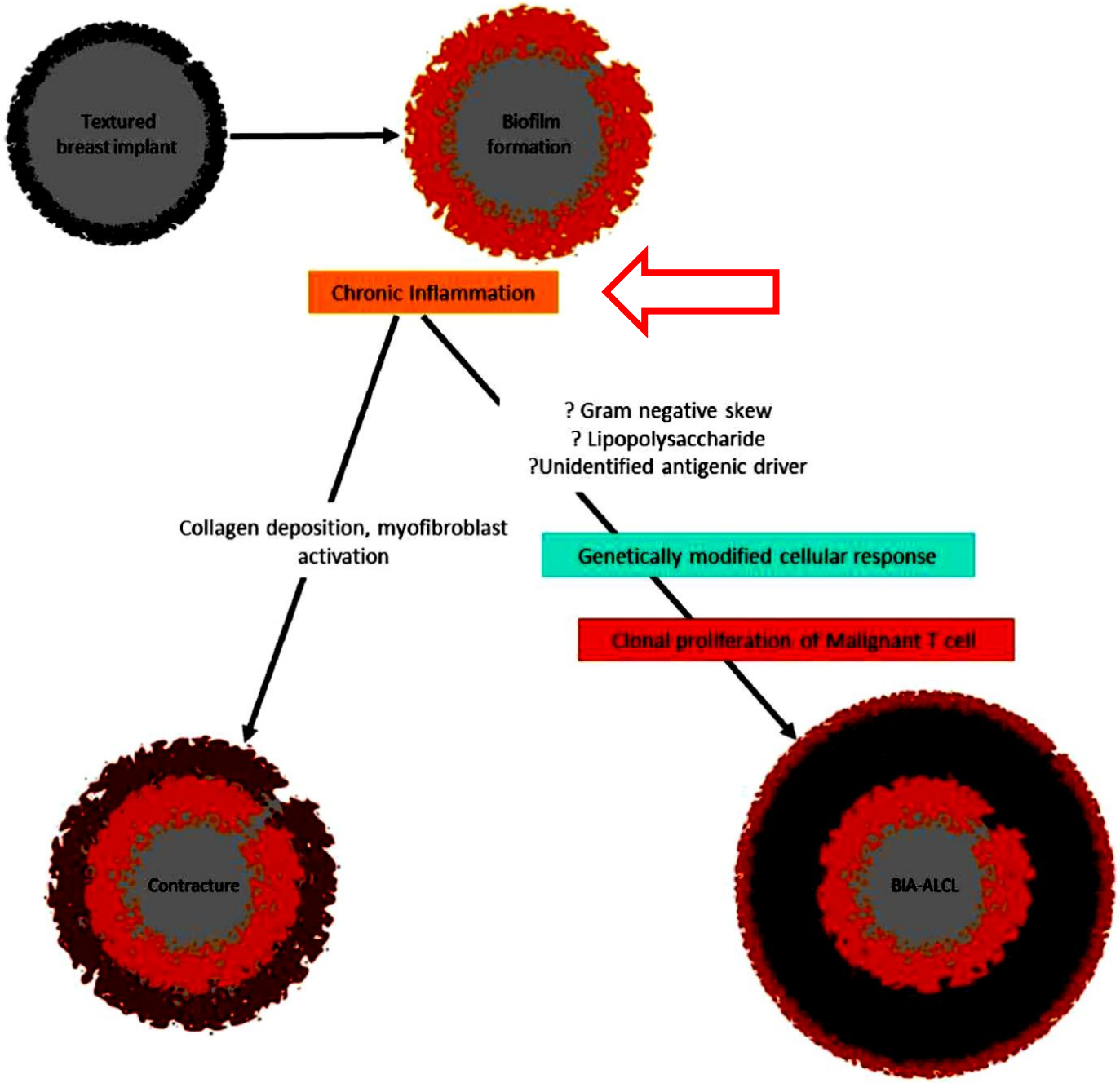
ORIGINAL ARTICLE

IL-10, IL-13, Eotaxin and IL-10/IL-6 ratio distinguish breast implant-associated anaplastic large-cell lymphoma from all types of benign late seromas

Arianna Di Napoli[1] · Daniele Greco[2] · Giorgia Scafetta[1] · Francesca Ascenzi[3] · Alessandro Gulino[2] · Luigi Aurisicchio[4] · Fabio Santanelli Di Pompeo[5] · Adriana Bonifacino[6] · Enrico Giarnieri[7] · John Morgan[8] · Rita Mancini[3] · Marshall E. Kadin[8]

Etiology and pathogenesis

Lajevardi SS et al. JPRAS 2022; 32:34-42.



Epstein–Barr-virus-positive large B-cell lymphoma associated with breast implants: an analysis of eight patients suggesting a possible pathogenetic relationship

L. Jeffrey Medeiros[1], Mario L. Marques-Piubelli[2], Valentina F. I. Sangiorgio[3], Roberto Ruiz-Cordero[4], Francisco Vega[1], Andrew L. Feldman[5], Jennifer R. Chapman[6], Mark W. Clemens[7], Kelly K. Hunt[8], Mark G. Evans[1], Christine Khoo[9], Stephen Lade[9], Mark Silberman[10], Jerzy Morkowski[11], Edward M. Pina[12], Daniel C. Mills[13], Christopher M. Bates[14], Winston B. Magno[15], Aliyah R. Sohani[16], Beth A. Sieling[17], Joseph M. O'Donoghue[18], Chris M. Bacon[19], Neill Patani[20], Despina Televantou[21], Suzanne D. Turner[22], Laura Johnson[23], Fiona MacNeill[24], Andrew C. Wotherspoon[25], Swaminathan P. Iyer[26], Luis E. Malpica[26], Keyur P. Patel[1], Jie Xu[1] and Roberto N. Miranda[1]✉

© The Author(s), under exclusive licence to United States & Canadian Academy of Pathology 2021

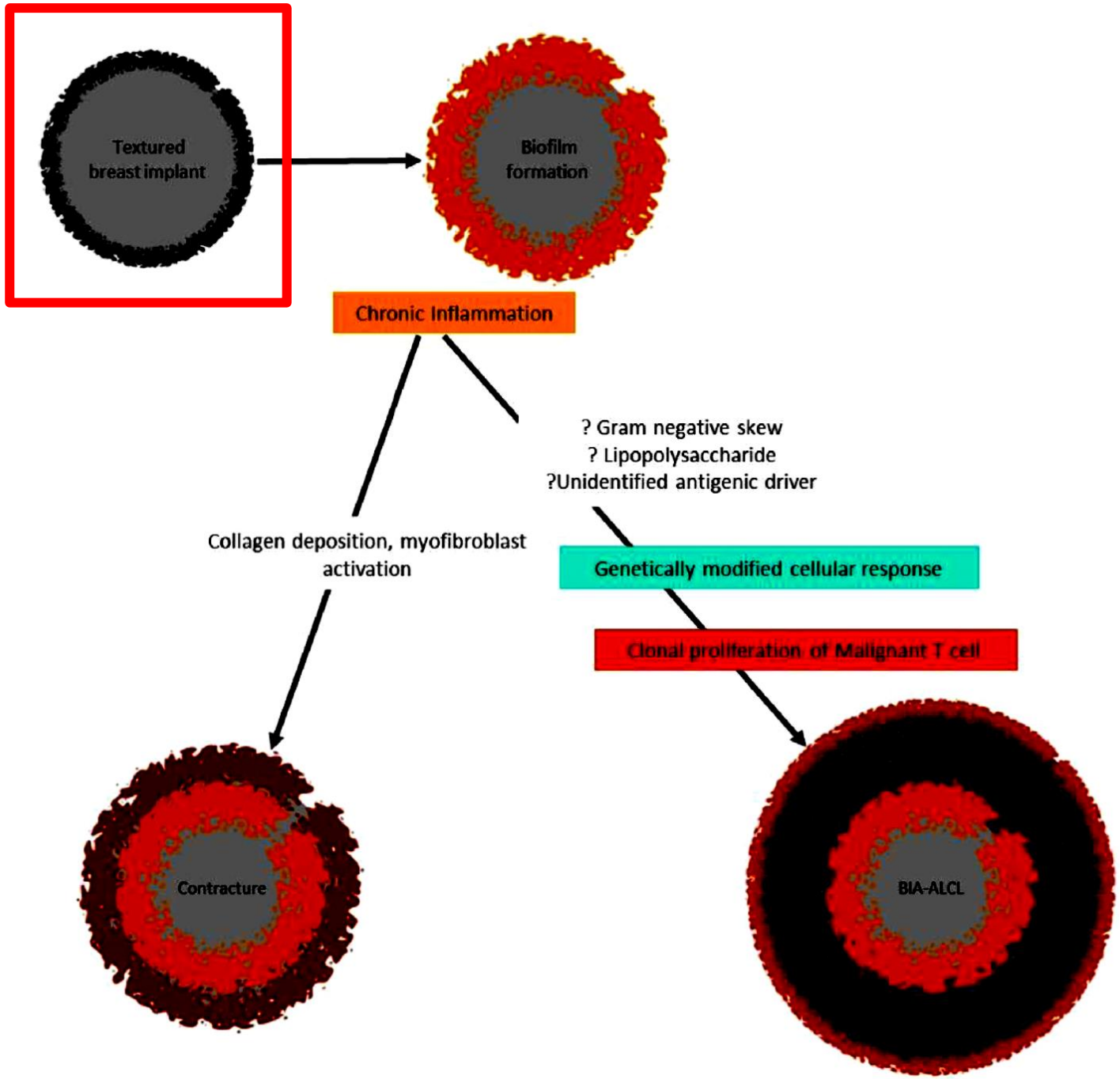
Breast implant anaplastic large cell lymphoma (ALCL) is a T-cell neoplasm arising around textured breast implants that was recognized recently as a distinct entity by the World Health Organization. Rarely, other types of lymphoma have been reported in patients with breast implants, raising the possibility of a pathogenetic relationship between breast implants and other types of lymphoma. We report eight cases of Epstein–Barr virus (EBV)-positive large B-cell lymphoma associated with breast implants. One of these cases was invasive, and the other seven neoplasms were noninvasive and showed morphologic overlap with breast implant ALCL. All eight cases expressed B-cell markers, had a non-germinal center B-cell immunophenotype, and were EBV+ with a latency type III pattern of infection. We compared the noninvasive EBV+ large B-cell lymphoma cases with a cohort of breast implant ALCL cases matched for clinical and pathologic stage. The EBV+ large B-cell lymphoma cases more frequently showed a thicker capsule, and more often were associated with calcification and prominent lymphoid aggregates outside of the capsule. The EBV+ B-cell lymphoma cells were more often arranged within necrotic fibrinoid material in a layered pattern. We believe that this case series highlights many morphologic similarities between EBV+ large B-cell lymphoma and breast implant ALCL. The data presented suggest a pathogenetic role for breast implants (as well as EBV) in the pathogenesis of EBV+ large B-cell lymphoma. We also provide some histologic findings useful for distinguishing EBV+ large B-cell lymphoma from breast implant ALCL in this clinical setting.

Modern Pathology; https://doi.org/10.1038/s41379-021-00863-1

Etiology and pathogenesis

Lajevardi SS et al. JPRAS 2022; 32:34-42.

In 2018, EU did not renew the CE mark to one specific textured implant; however, further attention should be paid to the differences between macro and micro-textured devices.



Akhavan AA et al. PRS 2021; 148:299-303

Breast implant-associated anaplastic large-cell lymphoma (BIA-ALCL) is a malignancy associated with textured breast implants. BIA-ALCL is typically restricted to the periprosthetic capsule, presenting as a unilateral recurrent seroma years after placement of a textured breast implant. Current estimates suggest an incidence of one in 3300 for patients with Allergan Biocell textured implants. As of February 6, 2019, U.S. Medical Device Reporting associated with BIA-ALCL showed 457 unique cases of BIA-ALCL, with 24 "unverified and potentially inaccurate" cases associated with a nontextured implant. As of February of 2019, there were 688 reported cases to date worldwide. To date, there are no published case reports of BIA-ALCL associated exclusively with smooth implants or with smooth implants after textured expanders, and there has been no reported smooth-only case in any registry, database, or journal worldwide. The authors present a case of BIA-ALCL associated with smooth round implants and textured tissue expanders. A 56-year-old woman was treated for left stage IIA invasive ductal carcinoma with bilateral mastectomies and immediate reconstruction with bilateral subpectoral textured tissue expanders. She underwent exchange to Mentor smooth-round implants, and completed adjuvant chemotherapy. Magnetic resonance imaging and examination 4.5 years after implant placement showed no abnormal findings. The patient had left breast trauma 5 years following implant placement while taking adalimumab, and developed an open wound requiring explantation. A recurrent seroma developed, and tested positive for BIA-ALCL on cytology. Surgical pathologic examination after total capsulectomy demonstrated stage IA BIA-ALCL. To the authors' knowledge, this is the first case report of BIA-ALCL in a patient with textured expanders followed by prolonged exposure to smooth round implants.

Individual genetic factors should exist, if the prevalence of BIA-ALCL is indeed low by considering the number of women, who received implants. However, they are still largely unknown.

Deva AK et al. Cancers 2020; 12:3861. Turner SD et al. Am J Surg Pathol 2020; 190: 2-10.

thank you
danke
謝謝
ngiyabonga
teşekkür ederim
gracias
merci
obrigado
dziękuję
bedankt
go raibh maith agat
sukriya
kop khun krap
mochchakkeram
спасибо
Баярлалаа
рахмат
dank je
tapadh leat
arigatô
dakujem
grazie
terima kasih
감사합니다
ありがとう
ευχαριστώ
мерси
hvala
mauruuru
sagolun
taiku
takk
mersi
barka
welalin
tack
spas
kia ora
vinaka
спасибі
blagodaram
misaotra
matondo
paldies
grazzi
mahalo
хвала
asante
manana
obrigada
tenki
murakoze
shukrane
mamnun
дякую
djiere dieuf
tau
taafetai lava
kiitos
dankie
dhanyavad
nanni
nandri
köszönöm
gracie
bayarlalaa
enkosi
sobodi
dekuji
chnorakaloutioun
gratias ago
gracies
sulpay
dankon
aciu
akun
mesi
madloba
didi
kam sah hamnida
najis tuke
rahmat
rahmet
tanemirt
xiexie
diolch
dhanyavadagalu
shukriya
merce
trugarez