

Endocrine Abstracts

May 2012 Volume 29

ISSN 1470-3947 (print) ISSN 1479-6848 (online)

ISSN 2046-0368 (CD-ROM)

15th International &
14th European Congress of
Endocrinology (ICE/ECE 2012)

5–9 May 2012, Florence, Italy



Online version available at
www.endocrine-abstracts.org

Published by
BioScientifica 



Endocrine Abstracts (www.endocrine-abstracts.org)

Endocrine Abstracts (ISSN 1470-3947) is published by BioScientifica, Euro House, 22 Apex Court, Woodlands, Bradley Stoke, Bristol BS32 4JT, UK.
Tel: +44 (0)1454-642240; Fax: +44 (0)1454-642201;
E-mail: editorial@endocrinology.org;
Web: www.bioscientifica.com.

Subscriptions and requests for back issues should be addressed to *Endocrine Abstracts*, Portland Press, PO Box 32, Commerce Way, Whitehall Industrial Estate, Colchester CO2 8HP, UK. Tel: +44 (0)1206-796351; Fax: +44 (0)1206-799331.

Subscription rates 2012

	Annual	Single part
North & South America	\$382	\$127
Rest of the World	£191/€287	£64/€96

There are two regular issues per year plus occasional additional issues. Each issue is a separate volume.

Claims and communications

All claims or communications regarding issues lost or damaged in transit should be addressed to Portland Press in Colchester (see above for address). This applies to both institutional and personal subscribers. No claims can be entertained if they are later than 3 months after the date of despatch.

Disclaimer

The material contained in each issue of the journal has been prepared and written by named authors. Accordingly, neither the conference, BioScientifica Ltd nor their officers, employees or agents are responsible for the accuracy or otherwise of any abstracts or other articles and shall have no liability for any claims, damages or losses howsoever arising from the contents or any use to which they may be put by any person. It is not possible to guarantee that the abstracts printed in this issue will be presented at the conference.

Cover design by Rumba Graphic Design Ltd, Bristol, UK.

Typeset by OKS Prepress Services, Chennai, India.
Printed by Latimer Trend & Company Ltd,
Plymouth, UK.

Printed on acid-free paper.

Copyright © 2012 by BioScientifica Ltd. This publication is copyright under the Berne Convention and the Universal Copyright convention. All rights reserved. Apart from any relaxations permitted under national copyright laws, no part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means without the prior permission of the copyright owners save under a licence issued in the UK by the Copyright Licensing Agency. *Photocopying in the USA.* Authorization to photocopy items for internal or personal use, or the internal or personal use of specific clients is granted by BioScientifica Ltd, provided that the appropriate fee is paid directly to Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923, USA, Tel: +1-978-750-8400. Prior to photocopying items for educational classroom use, please contact Copyright Clearance Center, Inc. at the address shown above.

Advertisements

Applications for advertisement space should be sent to Advertisement Department, BioScientifica Ltd, Euro House, 22 Apex Court, Woodlands, Bradley Stoke, Bristol-BS32 4JT, UK. Tel: +44 (0) 1454-642269; Fax: +44 (0)1454-642201; E-mail: advertising@endocrinology.org. Copy is required 6 weeks before publication date. Rates are available on request.

USA Postmaster: send address corrections to *Endocrine Abstracts*, c/o Mercury International, 365 Blair Road, Avenel, New Jersey 07001. Periodicals postage is paid at Rahway New Jersey and at additional mailing offices.

All despatches outside the UK are sent by air-speeded service.

Citing *Endocrine Abstracts*

When citing abstracts from this publication please include the names of the authors, year of publication, abstract title, name of this publication i.e. *Endocrine Abstracts*, volume and abstract number: e.g. Stewart P 2001 A tale of two enzymes. *Endocrine Abstracts* 2 SP2.





15th International & 14th European Congress of Endocrinology (ICE/ECE 2012)

5–9 May 2012, Florence, Italy

EDITORS

The abstracts were marked by the Abstract marking Panel selected by the programme Organising Committee

ICE/ECE 2012 Programme Organising Committee

Martin Reincke, Germany Chair

Members

Fahmy Amara
Ching-Chung Chang
Cheri Deal
Andrea Dunaif
Hiroshi Ito

Henry Kronenberg
Mark McLean
Ambrish Mithal
Maria Alevizaki
Jens Bollerslev

Philippe Bouchard
Justo P Castaño
Sevim Gullu
Jean-Mark Kaufman
Valdis Pirags

Hans Romijn
Christian Strasburger
Jeremy Tomlinson
Peter Trainer
Raimo Voutilainen

Abstract Marking Panel

A Abdel-Rahim
J Adamski
M Alevizaki
B Allolio
F Amara
N Anderson
S Arver
S N Assaad
C Badiu
L Bartalena
E Baudin
A Beckers
X Bertagna
F Beuschlein
N Biermasz
K Boelaert
J Bollerslev
G Borretta
F Borson-Chazot
M Boscaro
P Bouchard
R Bouillon
P Bouloux
J Bourguignon
N Bratina
A Brinkmann
K Brixen
J Brtko
M Burt
C G Caputo
J Castano
M Castellano
P Chanson
S Christin-Maitre
P Clayton
H Cohen
M Cooper
G Corona
M Dattani
C Daumerie
C De Block
A Dunaif
E Duncan
L Duntas
R Elisei
T Erbas
M Erdogan
M Fassnacht
R Feelders

Egypt
Germany
Greece
Germany
Egypt
USA
Sweden
Egypt
Romania
Italy
France
Belgium
France
Germany
The Netherlands
UK
Norway
Italy
France
Belgium
UK
Belgium
Slovenia
The Netherlands
Denmark
Slovak Republic
Australia
Italy
Spain
Italy
France
France
UK
USA
UK
Italy
UK
Belgium
Belgium
USA
Australia
Greece
Italy
Turkey
Turkey
Germany
The Netherlands

U Feldt-Rasmussen
D Ferone
C Follin
G Forti
L Fugazzola
A Giwercman
D Glinborg
D Grattan
C Gravholt
A Grossman
S Gullu
A Gursoy
K Ho, Ken
I Huhtaniemi
E Husebye
W Inder
G Johannsson
P Kadioglu
G Kaltsas
J-M Kaufman
F Kelestimur
M Kiel
R Kineman
B Kudla
A Lacroix
N Lahlou
N Lalic
S Lamberts
E Larger
P Laurberg
I Lazurova
L Leenhardt
J Lenders
A Lewinski
P Lips
S Llahana
M Ludgate
R Luque
M Mannelli
F Mantero
C Marcocci
S Mariotti
A Marland
M Massi Benedetti
A McCormack
M McLean
A Milewicz
S Minami
A Mithal

Denmark
Italy
Sweden
Italy
Italy
Sweden
Denmark
New Zealand
Denmark
UK
Turkey
Turkey
UK
UK
Norway
UK
Sweden
Turkey
Greece
The Netherlands
Turkey
USA
USA
Poland
France
France
Serbia
The Netherlands
France
Denmark
Slovak Republic
France
The Netherlands
Medical University
The Netherlands
UK
UK
Spain
Italy
Italy
Italy
Italy
UK
Italy
Australia
Australia
Poland
Japan
India

J Mittag
E Montanya
L Mosekilde
E Nieschlag
G Opocher
J O L Joergensen
R Paschke
R Peeters
U Plöckinger
T Poulsen
M Quinkler
G Radetti
D Ray
M Reincke
M Robledo
C Rosak
P Rotwein
M Sahin
P Santisteban
H Schneider
M Simoni
M Skugor
U Smith
A Sonmez
B Staels
G Stalla
C Strasburger
K Suminkova
A Tabarin
T Temelkova-Kurkschiev
V Tillmann
J Tomlinson
J Toppari
D Torpy
V Toscano
P Trainer
K Unluhizarci
B Vaidya
R Voutilainen
S Webb
W Wiersigna
J Wilding
G Williams
J-M Wit
B Yildiz
W Young
V Yumuk
L Zabulienė
M C Zatelli

Sweden
Spain
Denmark
Germany
Italy
Denmark
Germany
The Netherlands
Germany
Denmark
Germany
Italy
UK
The Netherlands
Spain
Germany
USA
Turkey
Spain
Germany
Italy
USA
Sweden
Turkey
France
Germany
Germany
Czech Republic
France
Bulgaria
Estonia
UK
Finland
Australia
Italy
UK
Turkey
UK
Finland
Spain
The Netherlands
UK
UK
The Netherlands
Turkey
USA
Turkey
Lithuania
Italy

The ISE and ESE would like to thank the ICE/ECE 2012 sponsors:

Gold Sponsors

Eli Lilly
Ipsen
Novartis
Otsuka
Pfizer

Bronze Sponsors

IBSA
Perkin Elmer

Other Sponsors & Exhibitors

The American Association of Clinical
Endocrinologists
Alexion
BioScientifica Ltd
BioVendor-Laboratori Medicina a.s.
Chinese Medical Association
DiaSorin
Endocrine Connections
ENEA
Endocrine Education Inc
European Society of Endocrinology
HRA Pharma
IDS
Lonza Cologne GmbH

Mediateque
Merckodia
Phoenix Pharmaceuticals Inc
Prostrakan
S. Karger AG
Salimaterics Europe Ltd
Sandoz International
Serono Symposia
Society for Endocrinology
The Endocrine Society
ThermoFisher Scientific
ViroPharma
WisePress



ESE Secretariat

Euro House
22 Apex Court
Woodlands
Bradley Stoke
Bristol BS32 4JT, UK

Contact:
Tel:
Fax:
E-mail:
Web site:

Andrea Davis
+44 (0)1454 642247
+44 (0)1454 642222
info@euro-endo.org
www.esa-hormones.org



ICE/ECE 2012 Secretariat

BioScientifica Ltd
Euro House
22 Apex Court
Woodlands
Bradley Stoke
Bristol BS32 4JT, UK

Tel:
Fax:
E-mail:
Web site:

+44 (0)1454 642240
+44 (0)1454 642222
ice-ece2012@bioscientifica.com
www.ice-ece2012.com

Adrenal Basic	OC13.1–OC13.6
Male Reproduction	OC14.1–OC14.6
Thyroid Basic	OC15.1–OC15.6
Female Reproduction Clinical	OC16.1–OC16.6
Diabetes Basic	OC17.1–OC17.6
Paediatric Endocrinology	OC18.1–OC18.6
Cardiovascular Endocrinology	OC19.1–OC19.6
NURSES ABSTRACTS	N1–N28

POSTER PRESENTATIONS

Adrenal cortex	P1–P113
Adrenal medulla	P114–P128
Bone & Osteoporosis	P129–P195
Calcium & Vitamin D metabolism	P196–P268
Cardiovascular Endocrinology and Lipid Metabolism	P269–P341.1
Clinical case reports - Pituitary/Adrenal	P342–P399
Clinical case reports - Thyroid/Others	P400–P480
Developmental endocrinology	P481–P498
Diabetes	P499–P746
Endocrine Disruptors	P747–P772
Endocrine tumours and neoplasia	P773–P884
Female Reproduction	P885–P983
Growth hormone IGF axis - basic	P984–P1006
Male Reproduction	P1007–P1069
Neuroendocrinology	P1070–P1152
Nuclear receptors and Signal transduction	P1153–P1169
Obesity	P1170–P1283
Paediatric endocrinology	P1284–P1330
Pituitary - Basic	P1331–P1360
Pituitary - Clinical	P1361–P1542.1
Steroid metabolism + action	P1543–P1561
Thyroid (non-cancer)	P1562–P1749
Thyroid cancer	P1750–P1857

INDEX OF AUTHORS



Otsuka have kindly sponsored the production of this abstract book. They were not involved with the marking and selection of abstracts.

not have a predictive value in foreseeing malignancy in residual thyroid tissue; however, other studies containing more patients are of necessity to clarify the issue.

Declaration of interest

The authors declare that there is no conflict of interest that could be perceived as prejudicing the impartiality of the research project.

Funding

This research did not receive any specific grant from any funding agency in the public, commercial or not-for-profit sector.

P1771

Ultrasound (US) features of thyroid nodules with cytology suspicious for malignancy

E. Taliani, A. Ansaloni, C. Diazzi, A. Granata, C. Carani, V. Rochira & B. Madeo
University of Modena & Reggio Emilia, Azienda Unità Sanitaria Locale, Modena, Italy.

Introduction

Several studies in literature have shown that some features of thyroid nodules at US are associated with malignancy. However, previous studies were focused mainly on subjects affected by multinodular goiter (about 70%) rather than subjects with thyroid cancer (about 30%). Furthermore, the main limitation of previous studies was the lack of thyroidectomy in all subjects.

Aim of the study

To evaluate the diagnostic value of US features in a selected sample of patients with thyroid nodules cytologically suspected for malignancy (THY4–THY5) by comparing US features of each nodule with the results of histological analysis after thyroidectomy.

Methods

In this prospective study, we enrolled 54 patients with cytological result suspicious of malignancy. All subjects underwent thyroid ultrasound before thyroidectomy. We evaluated the following US features: size, content, shape, margins, echogenicity, calcification, halo sign, vascular pattern, for all the nodules (those cytologically suspected and those not suspected). All enrolled patients underwent total thyroidectomy, therefore all benign and malignant nodules previously assessed at US received histological verification.

Results

In all the 54 patients a diagnosis of differentiated thyroid cancer was confirmed. Each of the following features: microcalcifications, macrocalcifications, irregular margins and hypoechogenicity at US correlate with malignancy at histology by using chi-square ($P < 0.001$). These features have high specificity but low sensitivity (microcalcifications 93.9–40.4%, macrocalcifications 98–22.8%, hypoechogenicity 96–21% respectively). Irregular margins is the feature with the best pair of sensitivity (65%) and specificity (65%).

Conclusions

These results confirm and reinforce previous studies that showed a correlation among microcalcification, irregular margins, hypoechogenicity and malignancy in a highly selected sample of patients undergoing thyroidectomy. Furthermore, in contrast with literature, we found a strong correlation also between macrocalcification and malignancy. US is a valid tool to select which nodules require FNA evaluation according to sonographic features closely related to malignancy.

Declaration of interest

The authors declare that there is no conflict of interest that could be perceived as prejudicing the impartiality of the research project.

Funding

This research did not receive any specific grant from any funding agency in the public, commercial or not-for-profit sector.

P1772

Incidence of ultrasound thyroid scan anomalies in healthy volunteers in modena, italy

V. Gnarini¹, G. Brigante¹, E. Della Valle¹, E. Taliani¹, C. Carani¹ & M. Simoni^{1,2}

¹University of Modena & Reggio Emilia, Azienda AUSL-NOCSAE of Baggiovara, Modena, Italy; ²University of Modena & Reggio Emilia, Modena, Italy.

Introduction

We assessed the incidence of ultrasound (US) thyroid scan anomalies in adult volunteers in the district of Modena

Methods

From December 2010 to October 2011 we performed US thyroid scan (Siemens Acuson Antares, 10 Mega Hertz-Linear scanner- B mode) in a cohort of 201 volunteers, recruited by local advertisement, women ($n = 135$) and men ($n = 66$), mean age 46 ± 10.7 . All participants were unaware of any thyroid disease and at their first thyroid US scan. Fine needle aspiration cytology (FNA) was performed in 13 subjects.

Results

US thyroid scan anomalies were found in 101 subjects (50.3%): 93 nodular goiters (95%) and 13 subjects with ultrasound features of thyroiditis (12.8%), 11 of them confirmed by positive anti Tg and/or anti TPO antibodies. Positive family history was present in 30% of subjects affected by thyroid US anomalies. In all subjects with nodules serum calcitonin was normal. 13 subjects (6.5%) with nodular goiter underwent FNA with the following cytology: 10 patients THY 2 (77%), 1 patient THY 3 (7.7%), 2 patients had THY 4 (15%) followed by histological confirmation of thyroid papillary carcinoma after total thyroidectomy (both women aged 48)

Conclusions

The incidence of thyroid anomalies, mainly nodular goiter, is very high in subjects unaware of any thyroid disease in the district of Modena, Italy. Thyroid cancer was found in 1% of all subjects, 2% of those affected by nodular goiter. Among subjects who underwent FNA the prevalence of cancer was 15%. Compared to other well-established screening programs like breast and colorectal cancer providing a yearly detection rate of about 0.45% and 0.27% respectively, the incidence of thyroid cancer seems to be much higher: thyroid US mass screening could allow the detection of asymptomatic cancer at a very early stage with a high cost-benefit ratio.

Declaration of interest

The authors declare that there is no conflict of interest that could be perceived as prejudicing the impartiality of the research project.

Funding

This research did not receive any specific grant from any funding agency in the public, commercial or not-for-profit sector.

P1773

Surgical treatment of locally advanced thyroid carcinoma with larynx infiltration: case report

I. Djuricic¹, A. Mikic², M. Buta¹, M. Oruci¹ & R. Dzodic¹

¹Institute for oncology and radiology of Serbia, Belgrade, Serbia; ²Institute of ORL KCS, Belgrade, Serbia.

Introduction

Infiltration of larynx by thyroid cancer represents fourth stage of the disease and is threatening disease. Lethal outcome of advanced thyroid cancer, which invades trachea and larynx, is usually associated with airway obstruction.

Patient and method

We are presenting 58 year old woman operated due to the advanced papillary carcinoma Patient underwent total thyroidectomy, central neck dissection, modified radical dissection of the right side, selective dissection on the left side, auto-transplantation of left parathyroid gland, partial vertical laryngectomy and reconstruction of defects with epiglottis and surgical tracheotomy. After surgical treatment she received a dose of 5.5 GBq J 131st. Postoperative stenosis of the larynx was treated twice with laser surgery.

Results

Traheostomy has been closed and the phonatory and respiratory functions were preserved after treatment. One year of follow up has passed with no signs of relapse.

Conclusion

Decision of resectability of the tumor with reconstruction of the defect in the larynx is the most commonly intraoperative decision. Radical surgery is a logical and rational therapeutic approach for thyroid cancer in the fourth stage.

The goal of radical surgery in locally advanced thyroid cancer is to prevent lethal outcome but can also be curative form of therapy with good quality of life.

Declaration of interest

The authors declare that there is no conflict of interest that could be perceived as prejudicing the impartiality of the research project.

Funding

This research did not receive any specific grant from any funding agency in the public, commercial or not-for-profit sector.

- Robinson, M S28.2
Robinson, P OC1.2
Robinson, S P1648
Robison, L OC18.4 & P1434
Robledo, M P1816, P1825, S40.2 & S68.1
Roca, I P1821
Roca, M P1137
Roca Rodríguez, M P1482
Roccio, M P1230
Rocha, M P561
Rocha, M P329 & P330
Roche, B P1540, P1592, P1831 & P249
Rochira, V P1010, P1048, P1549, P1763, P1764, P1768, P1771 & P1822
Rockman-Greenberg, C OC8.1
Rodgers, R P493 & P931
Rodien, P P1786
Rodionova, J P619
Rodríguez, J P85
Rodríguez Rodríguez, I P1855
Rodríguez-Domínguez, T P1216
Rodríguez-Sanchez, F P1670
Rodrigues, A P1826 & P878
Rodrigues, D P412
Rodrigues, E P799
Rodrigues, J P1614, P1761 & P834
Rodrigues, P P1328 & P398
Rodrigues, T P1132
Rodríguez, A P1645 & P677
Rodríguez Chinesta, J P1850
Rodríguez Rodríguez, I P666
Rodríguez Sanchez, A P374
Rodríguez-Chacón, M P917
Rodríguez-Molina, J P318
Roeb, J P1331
Roef, G OC2.3 & P1559
Roelfsema, F P1423
Roemmler, J OC10.2
Roganovic, N P1550
Roger, M P42
Rogers, A P1476
Rogers, B P1367, P1368 & P1376
Roggen, I P160
Rogowski, F P1598, P1601 & P1647
Rohenkohl, A P991 & P996
Rohmer, V P814 & P993
Roiter, I P1671
Rojnic Putarek, N P1269
Rojo, G P199 & P205
Rojo-Martinez, G P1270
Rokutanda, N OC13.5
Roldán, P P1694
Rolim, G P1132
Rolinski, J P1599
Román, A P1474 & P1475
Romagnoli, E P219
Romagnoli, M P1377
Roman, E P1165
Roman, MM P215
Romanello, G P992
Romano, M P1124, P1637 & P753
Romano, R P1333 & P753
Romano, S P1822
Romanouski, A P1012
Romei, C P1758, P1795 & P1809
Romero-Muñoz, M P1514
Romero-Ruiz, A P1018
Romijn, H P1423
Romijn, J P278 & P499
Rommel, T P1402
Roncella, M P787
Roncero-Martin, R P1216
Ronchetti, S P768
Ronchi, C P34
Roncucci, L P1822
Roques, S P249
Rorato, R P1136
Ros, S P1816
Rosales, R P1847
Rosati, S P740
Rosato, M P818
Rosca, R P131
Rose, I P8 & P9
Rosellini, V P787
Rosenfeld, R OC18.4
Rosenkranz, E P1121 & P1456
Rosenwald, A P34
Roser, J P979
Roslonowska, E P79 & P93
Ross, I P82
Ross, R P53 & S57.2
Rossato, D P73
Rossetti, R OC16.2, P885 & P927
Rossi, E OC14.1 & P879
Rossi, G P1180 & P1822
Rossi, M P1792, P800 & P801
Rossi, R P783
Rossi, S P1594
Rossi, V P1419 & P803
Rossmann, H P71
Rossmeiselova, L P1231
Rossum, Ev P1077
Rostomyan, L P780
Rota, C P1796
Rotella, C P700
Roth, C P1244
Roudier, M S49.3
Rödl, W OC15.3
Rovira, S P329 & P561
Roy, I P501 & P506
Rozhinskaya, L P1515 & P780
Rozhko, A P664
Ruano, MA P359
Ruas, L P128, P1624 & P878
Rubiales de Barioglio, S P1200
Rubin, B P20, P40 & P825
Rubinfeld, H OC4.5 & P1340
Rubino, M P1389, P1484 & P252
Rubio, I P688
Rubio-Almanza, M P27
Rubio-Matin, E P199
Ruchala, M P1600 & P1661
Rudovich, N P285
Rudzinska, M OC15.5
Rueda, A P1487
Ruffilli, I P1780
Ruffin, M OC1.1 & P1404
Ruggiero, C P1034
Rughooputh, N P828
Ruiz de Adana, M P1270, P686 & P688
Ruiz de azua, T P1810
Ruiz, R OC6.2
Ruiz-Castane, E OC14.1
Ruiz-Marcellan, M P1821
Ruiz-Pino, F P1018 & P1099
Rull, K P926
Runkle, I P1149 & P640
Rusak, M P1714
Rusalenko, M P664
Ruscica, M P502
Russo, G P992
Russo, R P132
Russo, T P940
Rustemoglu, A P1273
Rusu, C P1316
Ruszniewski, P P814
Rutz, C P1007
Rüegger, K N3
Rünkorg, K P705
Ruza, I P261
Ruzehaji, N N7
Ruzic, A P1253
Ruzsa, B P877
R-Villanueva, G P554
Ryan, G P1783
Ryberg, M P78
Rybicka, B P802
Rydén, M OC5.6
Ryska, A P1819
Sánchez, C P1645
Sánchez, IP P1066
Sánchez Sobrino, P P127
Sánchez-Martín, C P554
Sánchez-Pacheco, M P765
Saad, F P1021, P1207, P1228, P315 & S2.3
Saad, M P1105 & P510
Saatdjan, L P1317
Saba, A P250
Sabatini, S P787
Sabau, S OC3.4
Sabbaghian, N S40.1
Sabba', C P1049
Sabeckiene, N P1069
Sabino, T P390
Sabol, M P1204
Saboo, B P518, P523 & P690
Sabt, A P1303
Sacco, A P776
Sacco, L P8
Sacerdote, A P161
Sachdev, P OC3.6 & P538
Sadiku, E P649
Sadoul, J P993
Sadri, S P373
Saeger, W P1425
Saeki, T P586
Saenko, V P1813
Saez, C S56.1
Safranek, R P1622
Safradou, M P635
Saftig, P P1588
Sagan, L P1508
Saggiaro, F P789
Sagkan, R P1025



BREAKING NEW GROUND, FINDING INNOVATIVE THERAPEUTIC SOLUTIONS

IPSEN, A GLOBAL SPECIALTY-DRIVEN PHARMACEUTICAL COMPANY.
OUR AMBITION IS TO BECOME A LEADER IN SPECIALTY HEALTHCARE SOLUTIONS
FOR TARGETED DEBILITATING DISEASES

- Rapidly translate understanding of disease biology into therapies for unmet patient needs
- Swiftly grow and evolve in our targeted areas (neurology, endocrinology, uro-oncology, hemophilia) to allow global access to therapeutic solutions.

RCS Nanterre: 419 838 529 - UGARS © Harvard Kunigsmann/Céronis



1470-3947(201205)29;1-P

