- "*Rendiment d'una aproximació diagnòstica sistematitzada. Evidència i dubtes de la prevenció de l'ictus cardioembòlic*"

CLÍNICA dels INFARTS CEREBRALS CARDIOEMBÒLICS

- Societat Catalana de Cardiologia
  - *3 de març de 2014*

- Concepte **d'infart cerebral no cardioembòlic** (llacunars, aterotrombotics, causes inhabituals...) i posteriormente: l'infart cerebral cardioembòlic

- Importància de la Clinica del **Cardioembolisme cerebral**: gravetat, risc de recurrències i pronòstic

  - "**Ateromatosi complexa de crossa aòrtica**"

Current Cardiology Reviews, 2012, *8*, 54-67

Acute Cardioembolic Cerebral Infarction: Answers to Clinical Questions*

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Cardioembolic infarction in the Sagrat Cor-Alianza Hospital of Barcelona Stroke Registry

Arboix A, Vericat MC, Pujades R, Massons J, García-Eroles L, Oliveres M.
Cardioembolic infarction in the Sagrat Cor-Alianza Hospital of Barcelona Stroke Registry.
Acta Neurol Scand 1997: 96: 407–412

Original Paper

European Neurology

Eur Neurol 1999;41:135–142

The Barcelona Stroke Registry

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GUIES MÈDIQUES DE LA SOCIETAT CATALANA DE NEUROLOGIA

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04

Protocol de tractament

Diagnòstic i tractament de les malalties vasculars cerebrals

GUIES MÈDIQUES DE LA SOCIETAT CATALANA DE NEUROLOGIA

Societat Catalana de Neurologia

- **Guidelines for Management of Ischaemic Stroke and Transient Ischaemic Attack** ***2008***
  - *The European Stroke Organisation (ESO) Executive Committee and the ESO Writing Committee*
    - *(Cerebrovasc Dis 2008; 25: 457-507)*

ARTÍCULO ORIGINAL

Estimación de la incidencia poblacional y la mortalidad de la enfermedad cerebrovascular establecida isquémica y hemorrágica en 2002

Jaume Marrugat[a,b], Adrià Arboix[c], Lluís García-Eroles[d], Teresa Salas[e], Joan Vila[a], Conxa Castell[f], Ricard Tresserras[g] y Roberto Elosua[a]

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Rev Esp Cardiol 2007; 60: 573-580

TABLE 1. **Cardiovascular Risk Factors of 2704 Patients With Cerebral Infarction. Descriptive Analysis of Each Etiological Type of Stroke**

	Total	Atherothrombotic	Lacunar	Cardioembolic	Undetermined	Unusual
Patients		770 (28.5)	733 (27.1)	763 (28.2)	324 (12)	114 (4.2)
High blood pressure	1501 (55.5)	509 (66.1)[a]	525 (71.6)[a]	377 (49.4)[a]	59 (18.2)[a]	31 (27.2)[a]
Atrial fibrillation	807 (29.8)	120 (15.6)[a]	81 (11.1)[a]	573 (75.1)[a]	25 (7.7)[a]	8 (7)[a]
Diabetes mellitus	632 (23.4)	242 (31.4)[a]	218 (29.7)[a]	142 (18.6)[b]	24 (7.4)[a]	6 (5.3)[a]
Dyslipidemia	480 (17.8)	164 (21.3)[a]	166 (22.6)[a]	88 (11.5)[a]	52 (16)[a]	10 (8.8)
Prior cerebral infarction	468 (17.3)	164 (21.3)[c]	117 (16)	146 (19.1)	31 (9.6)[a]	10 (8.8)[b]
Ischemic heart disease	435 (16.1)	150 (19.5)[c]	104 (14.2)	163 (21.4)[a]	14 (4.3)[a]	4 (3.5)[a]
TIA	317 (11.7)	116 (15.1)[b]	80 (10.9)	73 (9.6)[c]	37 (11.4)	11 (9.6)
Smoking (>20 cigarettes/day)	260 (9.6)	87 (11.3)[c]	86 (11.7)[a]	28 (3.7)[a]	41 (12.7)[a]	18 (6.9)
COPD	223 (8.2)	74 (9.6)	61 (8.3)	62 (8.1)	20 (6.2)	6 (5.3)
Peripheral vascular disease	214 (7.9)	100 (13)[b]	57 (7.8)	50 (6.6)	3 (0.9)[b]	4 (3.5)[c]
Valve disease	174 (6.4)	11 (1.4)[a]	21 (2.9)[a]	130 (17)[a]	6 (1.9)[b]	6 (5.3)
Congestive heart failure	148 (5.5)	43 (5.6)	24 (3.3)[b]	72 (9.4)[a]	8 (2.5)[b]	1 (0.9)[c]
Obesity	118 (4.4)	36 (4.7)	47 (6.4)[a]	17 (2.2)[b]	13 (4)	5 (4.4)
Oral anticoagulants	94 (3.5)	18 (2.3)[c]	7 (1)[a]	63 (8.3)[a]	2 (0.6)[a]	4 (3.5)
Alcohol abuse (>80 g/day)	66 (2.4)	26 (3.4)[c]	21 (2.9)	5 (0.7)[c]	10 (3.1)	4 (3.5)
Chronic liver disease	57 (2.1)	17 (2.2)	15 (2.1)	15 (2)	10 (3.1)	0
Prior cerebral hemorrhage	32 (1.2)	9 (1.2)	9 (1.2)	7 (0.9)	6 (1.9)	1 (0.9)

COPD indicates chronic obstructive pulmonary disease; TIA, transient ischemic attack.
[a]$P<.001$.
[b]$P<.01$.
[c]$P<.05$.
Data expressed as n (%).

Arboix et al. Rev Esp Cardiol 2008; 61: 1020-9

Clinical Study of 227 Patients With Lacunar Infarcts

A. Arboix, MD, J.L. Martí-Vilalta, MD, and J.H. García, MD

We describe an analysis of 227 patients with lacunar infarcts; 177 were inpatients and the remaining 50 were outpatients. The group comprised 11% of all inpatients with cerebrovascular pathology and 16% of all consecutive inpatients with brain infarcts studied at the Department of Neurology of the Hospital de la Santa Creu i Sant Pau. The main risk factors identified in these patients were arterial hypertension in 164 (72%), diabetes mellitus in 64 (28%), and heart disease in 58 (26%). The most common clinical syndromes were pure motor hemiparesis in 125 (55%), pure hemisensory stroke in 42 (18%), the sensorimotor deficit syndrome in 34 (15%), ataxic hemiparesis in seven (3%), and the dysarthria-clumsy hand syndrome in four (2%); atypical syndromes were observed in 15 patients (7%). Lacunes were demonstrated by computed tomography in 100 patients (44%) and by magnetic resonance imaging in 35 (78%) of the 45 patients in which it was applied. Magnetic resonance imaging was significantly better ($p<0.001$) than computed tomography for imaging lacunes, especially those located in either the pons ($p<0.005$) or the internal capsule ($p<0.001$). After the acute phase, mild or no neurologic disability was detected in 178 patients (78.4%), moderate disability persisted in 48 patients (21.1%), and severe disability was recorded in one case (0.4%). Lacunar infarcts are a clearly defined entity with characteristic clinical features and an excellent short-term prognosis. Magnetic resonance imaging is the current method of choice for demonstrating these small brain lesions. (*Stroke* 1990:21:842–847)

Tractament antiagregant plaquetari

- "Combined **aspirin and dipyridamole**, or **clopidogrel alone**, should be given. Alternatively, **aspirine alone or triflusal alone**, may be used" *(Class I, Level A)*

Cerebrovasc Dis 2008; 25: 457-507

Tractament antiagregant plaquetari (II)

- The combination of **aspirine and clopidogrel** is not recomended in patients with recent ischaemic stroke, except in patients with specific conditions (e.g. *unstable angina or non-Q-wave MI, or recent stenting*); treatment should be given for up 9 months after the event (Class I; Level A)

Cerebrovasc Dis 2008; 25: 457-507

European Journal of Neurology 2001, **8:** 133–139

Ischemic stroke of unusual cause: clinical features, etiology and outcome

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Keywords:
hematological disorders, hospital-based stroke registry, ischemic stroke, multivariate analysis, unusual cause

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The clinical features, etiology and neurological outcome of ischemic stroke of unusual cause (ISUC) have rarely been reported. We retrospective reviewed all patients with this stroke subtype entered in the Sagrat Cor Hospital of Barcelona Stroke Registry, which includes data from 2000 consecutive first-ever stroke patients admitted to the hospital between 1986 and 1995. Patients with previous ischemia and/or hemorrhagic stroke were excluded. Topographic, anamnestic, clinical and neuroimaging characteristics of ISUC were assessed. Predictors of this stroke subtype were determined by logistic regression analysis. Ischemic stroke of unusual etiology was diagnosed in 70 patients (32 men and 38 women), with a mean ± SD age of 52 ± 22.4 years. This stroke subtype accounted for 4.3% of all first-ever strokes and 6% of all first-ever brain infarcts. Etiologies included hematological disorders in 17 cases, infection in 11, migraine stroke in 10, cerebral infarction secondary to venous thrombosis in nine, primary inflammatory vascular conditions in six and miscellaneous causes in 17. In the multivariate analysis after excluding cerebral venous thrombosis ($n = 9$) and arterial dissection ($n = 4$), because of typical clinical and radiological features, independent predictors of ISUC included 45 years of age or less (odds ratio [OR] 14.8), seizures (OR 6.8), headache (OR 5.2), hemianopia (OR 2.6) and occipital lobe involvement (OR 3.0). Patients with ISUC presented a lower in-hospital mortality rate (7.1% vs. 14.4%; $P < 0.05$), were more frequently symptom free at discharge (35.7% vs. 25.8%; $P < 0.05$) and experienced a longer mean length of hospital stay (23.7 days vs. 18.2 days; $P = 0.06$) than non-ISUC patients. We conclude that ISUC is infrequent, etiologies are numerous and hematologic disorders are the most frequent cause. We emphasize the better prognosis and the need to distinguish it from other ischemic stroke subtypes which have a different treatment approach and outcome.

Table 1 Unusual causes of stroke in 1164 cases of first-ever brain infarction included in the Sagrat Cor Hospital of Barcelona Stroke Registry

Etiology	No. of patients
Hematological disorders	17
Essential thrombocythemia	7
Polycythemia vera	2
Smoker's polycythemia	1
Acute lymphoblastic leukemia	1
Acute non-lymphoblastic leukemia	1
Waldenström's macroglobulinemia	1
IgA lambda myeloma	1
Lymphocytic lymphoma	1
Aplastic anemia	1
Primary anti-phospholipid syndrome	1
Infection	11
Syphilitic meningitis	4
Infective endocarditis	4
Meningococcal meningitis	1
Pneumococcal meningitis	1
HIV infection	1
Migraine stroke	10
Cerebral infarction secondary to venous thrombosis	9
Septic thrombophlebitis	2
Oral contraceptives	1
Behćet's disease	1
Protein C deficiency	1
Breast carcinoma	1
Sympathomimetics abuse	1
Idiopathic	2
Primary inflammatory vascular disorders	6
Giant cell arteritis	4
Systemic lupus erythematosus	1
Sarcoid angiitis	1
Miscellaneous	17
Arterial dissection	4
Marasmic endocarditis	2
Tumoral arterial cerebral compression	2
Embolization from arterial aneurysm	2
Perioperative stroke	2
MELAS	1
Pentosan polysulphate-induced thrombocytopenia with thrombosis	1
Moya Moya disease	1
Cocaine abuse	1
Homocystinuria	1
Total	70

Short Communication

Ischemic Stroke as First Manifestation of Essential Thrombocythemia

Report of Six Cases

Adrià Arboix, MD; Carles Besses, MD; Pilar Acín, MD; Juan B. Massons, MD; Lourdes Florensa, MD; Montserrat Oliveres, MD; Jordi Sans-Sabrafen, MD

Background Ischemic stroke as a presenting sign of essential thrombocythemia has been infrequently reported. We describe six patients in whom cerebrovascular disease was the first manifestation of this myeloproliferative disease. A positive endogenous megakaryocyte and/or erythroid colony growth from blood was a diagnostic criterion of essential thrombocythemia in patients with platelets counts lower than 600×10^9/L.

Case Descriptions These six patients represented 0.54% of all patients with first stroke, 42.8% of all hematologic disorders associated with stroke, and 12.5% of all patients with essential thrombocythemia diagnosed from 1986 to 1992 at our institution. Eleven acute cerebrovascular accidents (6 transient ischemic attacks, 5 definitive cerebral infarcts) were registered. Mean time from ischemic stroke to diagnosis of essential thrombocythemia was 4.5 months (range, 1 to 12 months). The mean platelet count was 597×10^9/L (range, 414 to 760×10^9/L). Four patients had platelets counts lower than 600×10^9/L. All patients had circulating erythroid progenitors, megakaryocytic progenitors, or both.

Conclusions Ischemic stroke as a presenting manifestation of essential thrombocythemia is probably underrecognized. The diagnosis of thrombocythemia should not be excluded on the basis of platelet counts lower than 600×10^9/L. The availability of in vitro culture of hematopoietic progenitors from peripheral blood makes it possible to diagnose early and atypical cases. (***Stroke*. 1995;26:1463-1466.**)

Key Words • cerebral ischemia • myeloproliferative disorders • diagnosis • thrombocythemia, hemorrhagic

NOTAS CLÍNICAS

Infarto cerebral en un adulto joven, como forma de presentación de un MELAS (síndrome encefalomiopático con acidosis láctica e isquemia cerebral)

A. Arboix, J. Massons, M. Oliveres, C. Navarro*, M.C. Domínguez**, A. Ortega* y F. Titus

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*** Servicio de Bioquímica. Hospital Infantil Valle de Hebrón. Barcelona*

Simonet (1890). El Prado. Madrid

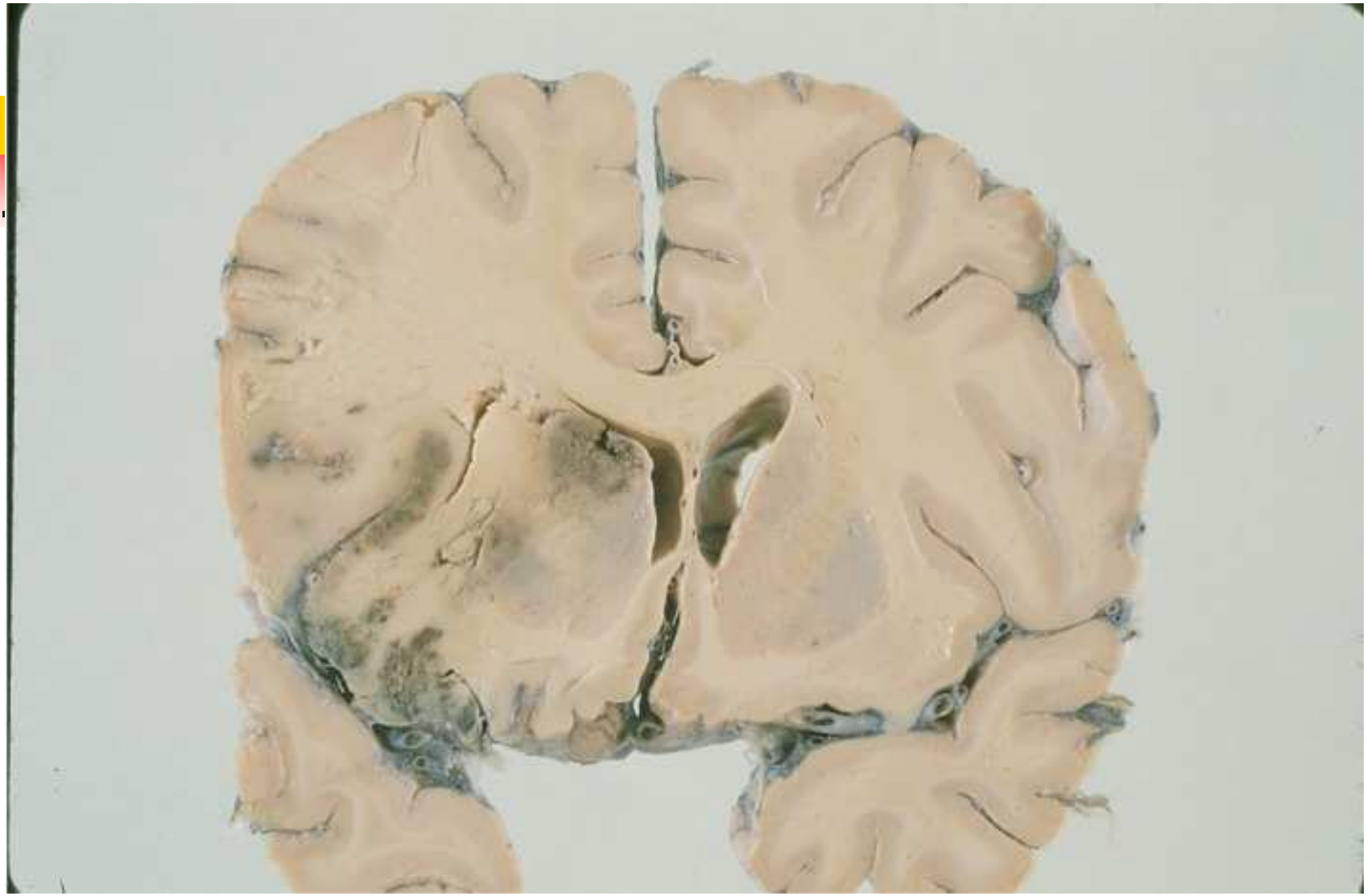

Fig. (1). Histopathological specimen showing a hemorrhagic cerebral infarction of a cardioembolic origin with signs of ventricular displacement and brain herniation in the territory of the middle cerebral artery.

European Journal of Neurology 1999, **6**:677–683

Early differentiation of cardioembolic from atherothrombotic cerebral infarction: a multivariate analysis

Adrià Arboix[a], Montserrat Oliveres[a] Juan Massons[a], Ramón Pujades[b] and Luis García-Eroles[c]

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Original Article

Trends in clinical features and early outcome in patients with acute cardioembolic stroke subtype over a 19-year period

Adrià Arboix[1,2], Joan Massons[1], Luis García-Eroles[3], Cecilia Targa[1], Olga Parra[2,4], Montserrat Oliveres[1]

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Box 1. Type of heart disease and cardioembolic risk.

High risk of embolism

- Atrial fibrillation
- Acute myocardial infarction within the previous 6 weeks
- Mechanical valve prosthesis
- Mitral stenosis of rheumatic origin
- Atrial or ventricular thrombi
- Atrial myxoma and cardiac tumors
- Infectious/marantic endocarditis
- Complex aortic arch atheromatosis
- Dilated myocardiopathy with ventricular ejection fraction <35%

Moderate/low risk of embolism

- Calcification of the mitral valve ring
- Patent foramen ovale
- Atrial septal aneurysm
- Calcified aortic stenosis
- Bioprosthetic valve
- Mitral valve prolapse
- Spontaneous echo contrast

Data taken from [4,6,12].

Table 3. Frequency of the Different Cardiological Substrate in 402 Patients with Cardioembolic Stroke in the Sagrat Cor Hospital of Barcelona Stroke Registry

Cardiac source of embolism	Total patients	
Atrial fibrillation	318 (79.1%)	
Lone atrial fibrillation		88
Associated with structural cardiac disease		230
Hypertensive left ventricular hypertrophy	120 (29.8%)	
Associated with atrial fibrillation		118
Associated with atrial flutter		2
Left ventricular systolic dysfunction	91 (22.6%)	
Sinus rhythm		59
Atrial fibrillation		32
Rheumatic mitral valve disease	50 (12.4%)	
Mitral annular calcification	40 (9.9%)	
Mitral valve prolapse	5 (1.2%)	
Atrial septal aneurysm with patent foramen ovale	4 (1%)	
Degenerative heart valve disease	4 (1%)	

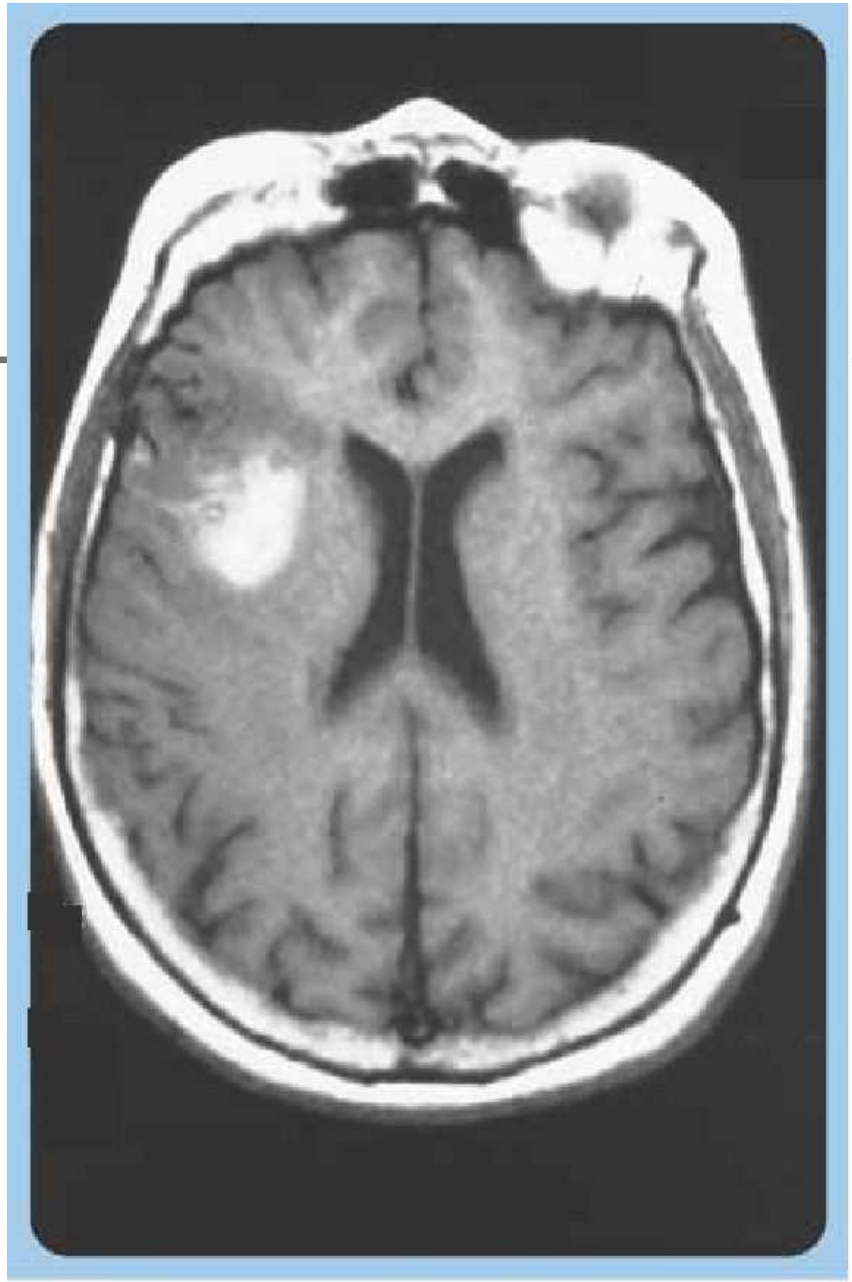

Figure 3. Brain magnetic resonance imaging of a sylvian cardioembolic hemorrhagic infarction (T1-weighted spin echo sequences).

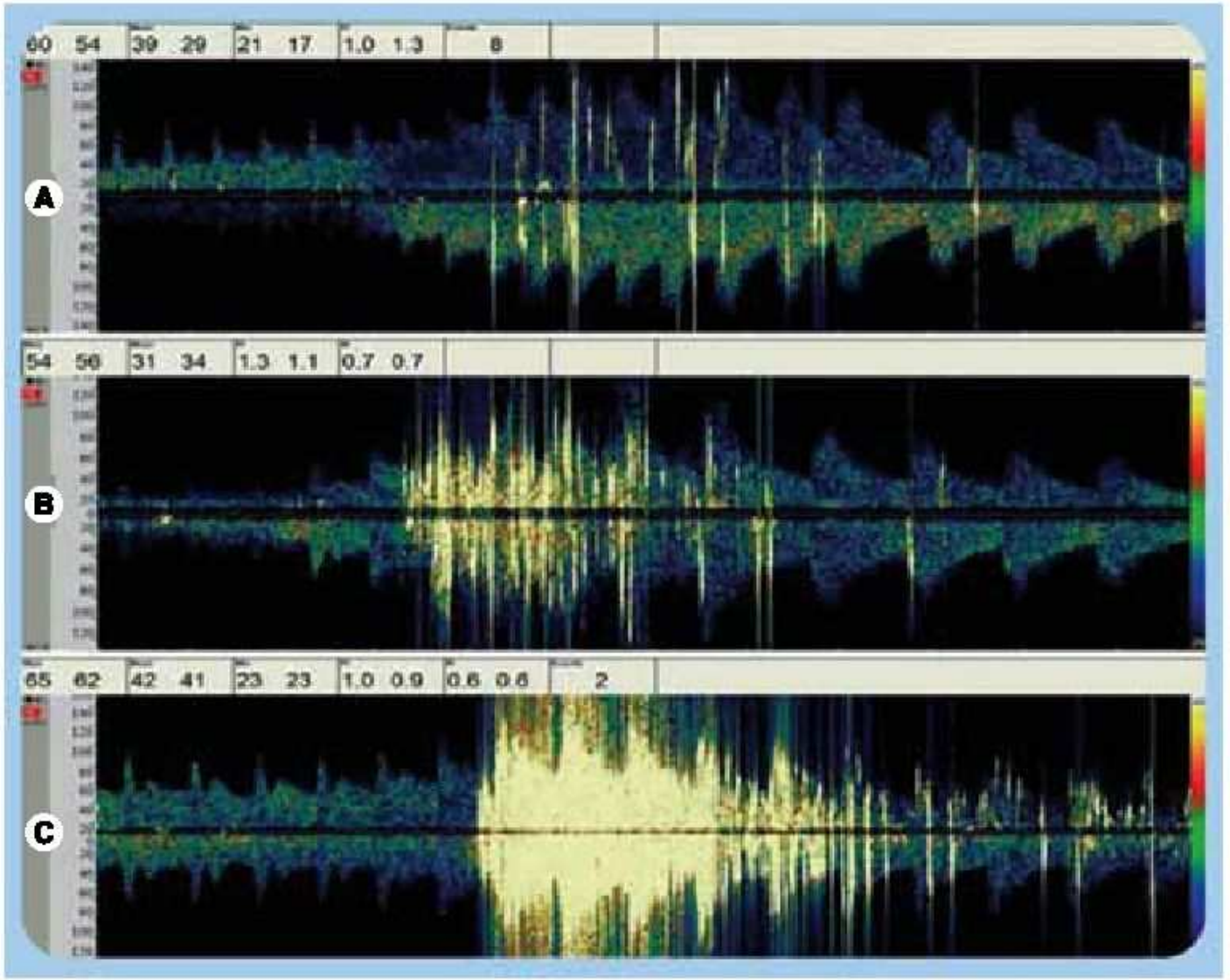

Figure 5. Right-to-left shunt detected by transcranial Doppler sonography with microbubbles in the middle cerebral artery.
Figure provided courtesy of Xavier Ustrell (Hospital Universitari Joan XXIII, Tarragona, Spain).

Table 3. Stroke risk stratification schemes in patients with nonvalvular atrial fibrillation.

Scheme	Low risk of stroke	Moderate risk or stroke	High risk or stroke	Ref.
Atrial Fibrillation Investigators	Not moderate/high risk	Age >65 years of age, not high risk	Prior ischemia, high BP, DM	[70]
SPAF III study	Not moderate/high risk	High BP, not high risk	Prior ischemia, female >75 years of age, CHF, LV <25%, systolic BP >160	[71]
The seventh ACCP Conference on Anti-thrombotic and Thrombolytic Therapy	Not moderate/high risk	One of: 65–75 years of age, DM, CAD and not high risk	Prior ischemia, high BP, CHF, >75 years of age, or ≥2 moderate risk factors	[72,73]
$CHADS_2$ scoring system†	Score: 0	Score: 1	Score: ≥2	[74]
Framingham Heart Study	Score: +6 for prior ischemia; 0–4 for BP; +4 for DM; +0–10 for age; 6 for female Predicted 5-year risk of stroke ranges between 5% for 0–1 points and 75% for 31 points			[75]

†Assigns 1 point each for CHF, high BP, age 75 years or older and diabetes, and 2 points for a previous stroke or transient ischemic attack.
ACCP: American College of Chest Physicians; BP: Blood pressure; CAD: Coronary artery disease; CHF: Congestive heart failure; DM: Diabetes mellitus; LV: Left ventricular fractional shortening; SPAF: Stroke Prevention in Atrial Fibrillation.

ELSEVIER

International Journal of Cardiology 73 (2000) 33–42

International Journal of Cardiology

www.elsevier.com/locate/ijcard

Atrial fibrillation and stroke: clinical presentation of cardioembolic versus atherothrombotic infarction

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Table 1. In-hospital mortality according to stroke subtypes

Subtype	Alive	Dead	Percentage
Ischaemic	686	107	13.5
Lacunar	177	none	0
Cardioembolic	113	34	23.1
Atherothrombotic	215	54	20.1
Unusual cause	44	4	8.3
Undetermined origin	137	15	9.8
Haemorrhagic	139	54	27.9
Parenchymal haemorrhage	108	48	30.7
Subarachnoid haemorrhage	20	5	20
Subdural haematoma[1]	10	1	10
Epidural haematoma[1]	1	none	0

[1] Spontaneous, not resulting from injury.

(Arboix et al. Cerebrovasc Dis 1996; 6: 161-165)

Table 2. Predictive value of cardiovascular risk factors for in-hospital death in the different stroke subtypes in the Sagrat Cor Hospital of Barcelona Stroke Registry.

Stroke subtype	Odds ratio (95% CI)	p-value
All brain infarctions		
Atrial fibrillation	2.33 (1.84–2.96)	0.000
Heart failure	1.96 (1.33–2.89)	0.001
COPD	1.56 (1.01–1.89)	0.044
Previous cerebral infarction	1.43 (1.07–1.89)	0.014
Age	1.05 (1.03–1.06)	0.000
Hyperlipidemia	0.58 (0.39–0.85)	0.006
Atherothrombotic infarct		
Heart failure	2.87 (1.45–5.71)	0.003
Atrial fibrillation	1.80 (1.09–2.96)	0.021
Age	1.03 (1.01–1.05)	0.035
Hyperlipidemia	0.53 (0.28–0.98)	0.045
Cardioembolic infarction		
Peripheral arterial disease	2.18 (1.17–4.05)	0.014
Previous cerebral infarction	1.75 (1.16–2.63)	0.007
Heart failure	1.71 (1.01–2.90)	0.047
Age	1.06 (1.04–1.08)	0.000
Undetermined etiology		
Hypertension	3.68 (1.78–7.62)	0.000
Age	1.05 (1.01–1.09)	0.005

Data taken from [12].

Original Paper

Cerebrovascular Diseases

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Predictive Clinical Factors of In-Hospital Mortality in 231 Consecutive Patients with Cardioembolic Cerebral Infarction

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Table 2. Results of multivariate analysis

Statistical model based on	β	SE (β)	OR	95% CI
Clinical variables[1]				
Altered consciousness	2.3204	0.3746	10.17	4.89–21.21
Limb weakness	2.0085	0.8074	7.45	1.53–36.27
Congestive heart failure	1.1845	0.5535	3.26	1.10–9.67
Male gender	0.8167	0.3814	2.26	1.07–4.78
Age	0.0516	0.0215	1.05	1.01–1.10
Clinical and neuroimaging variables and presence of early recurrent embolism[2]				
Early recurrent embolism	3.5132	0.9735	33.55	4.97–226.16
Altered consciousness	2.5764	0.4059	13.15	5.93–29.13
Limb weakness	2.0823	0.8268	8.02	1.58–40.56
Congestive heart failure	1.3092	0.5938	3.70	1.15–11.85
Male gender	0.8849	0.4069	2.42	1.09–5.37
Age	0.0581	0.0232	1.05	1.01–1.10

SE = Standard error; OR = odds ratio; CI = confidence interval.

[1] β = –7.3531; SE (β) = 1.8751.

[2] β = –8.1923; SE (β) = 2.0075.

Original Paper

Cerebrovascular Diseases

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Accepted: March 30, 1998

Clinical Predictors of Early Embolic Recurrence in Presumed Cardioembolic Stroke

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Table 3. Independent predictive value of different variables on early recurrent embolization

Statistical model based on	β	SE (β)	ORs
Clinical variables[a]			
Alcohol abuse	3.0822	1.3488	21.80 (1.55–306.69)
Hypertension, rheumatic heart disease, and atrial fibrillation	1.4696	0.7206	4.34 (1.06–17.85)
Nausea, vomiting	1.3179	0.6476	3.73 (1.05–13.29)
Previous cerebral infarction	1.1679	0.4799	3.21 (1.26–8.24)
Clinical and outcome variables[b]			
Alcohol abuse	2.6262	1.3081	13.82 (1.09–174.85)
Nausea, vomiting	1.5207	0.6492	4.57 (1.30–16.12)
Hypertension, rheumatic heart disease, and atrial fibrillation	1.4894	0.7519	4.43 (1.03–19.07)
Cardiac events	1.4489	0.5620	4.25 (1.43–12.67)
Previous cerebral infarction	1.1036	0.4910	3.01 (1.16–7.82)

95% CI in parentheses.

[a] $\beta = -3.2127$; SE(β) = 0.3091; goodness of fit = 361.37; d.f. = 342; p = 0.2259.

[b] $\beta = -3.4297$; SE(β) = 0.3390; goodness of fit = 356.72; d.f. = 341; p = 0.2681.

Papel de las placas complejas de ateroma aórtico en la recurrencia del infarto cerebral de etiología incierta

Ramón Pujadas[a], Adriá Arboix[b], Núria Anguera[a], Montserrat Oliveres[b], Joan Massons[b] y Emilio Comes[b]

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Rev Esp Cardiol. 2005;58(1):34-40

- "It is recommended that patients who have a stroke on antiplatelet therapy should be re-evaluated for pathophysiology and risk factors"
  - *Cerebrovasc Dis 2008; 25: 457-507*)
  - *Guies Oficials de Diagnòstic i tractament de la SCN 2011*

Mitral Annular Calcification as a Marker of Complex Aortic Atheroma in Patients with Stroke of Uncertain Etiology

Ramón Pujadas, M.D.,* Adrià Arboix, M.D.,† Núria Anguera, M.D.,* Josefa Rafel, M.D.,* Federico Sagués, M.D.,* and Roser Casañas, M.D.*

Departments of *Cardiology and †Neurology, Hospital Universitari del Sagrat Cor, Viladomat, Barcelona, Spain

The aim of this study was to evaluate the presence of dense mitral annular calcification as a marker of complex aortic atherosclerosis in patients with stroke of uncertain etiology. One hundred twenty-one patients with stroke of uncertain etiology were evaluated for complex aortic atherosclerotic plaques; their presence and severity were correlated with transthoracic echocardiographic findings, demographic data, and cardiovascular risk factors. Complex plaques in the ascending aorta or aortic arch were found in 72 of the 121 patients (59.5%). The only difference seen in patients with or without plaques was the presence of dense mitral annular calcification (58.3 vs 16.3%; $P < 0.001$). Dense mitral annular calcification ($n = 50$) was associated with higher prevalence of complex aortic plaques (84.0% vs 42.3%; $P < 0.001$), mobile components (28.0% vs 9.9%; $P < 0.01$), and protruding (80.0% vs 36.6%; $P < 0.001$), ulcerated (16.0% vs 1.4%; $P < 0.01$), and multisite complex plaques (46.0% vs 9.0%; $P < 0.001$). Therefore, in patients with stroke of uncertain etiology dense mitral annular calcification is an important marker of aortic atherosclerosis with high risk of embolism, and this association may explain in part the high prevalence of stroke and peripheral embolism in patients with mitral annular calcification. (ECHOCARDIOGRAPHY, Volume 25, February 2008)

Med Clin (Barc). 2012;138(4):160–164

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Nota clínica

Ateromatosis compleja del cayado aórtico: estudio de 71 pacientes con infartos lacunares

Adrià Arboix [a,*], Maria Rexach [a], Marta Subirà [a] y Ramon Pujadas [b]

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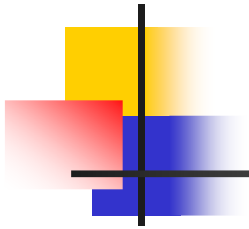
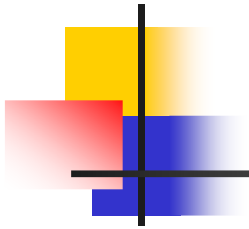


- **El *calaix de sastre* dels infarts cerebrals de causa desconeguda**
- **Infarts essencials i *ateromatosi complexa de la crossa aòrtica***



- Aproximació diagnòstica sistematitzada és indispensable
- Evidència en la necessitat d'una adequada prevenció secundària

Antic retaule major del Mestre **Pere Oller, 1427** (catedral de Vic)

"El poder és violent quan és dèbil"
"Voleu evitar les revolucions? Feu evolucions"
" La veritat és la realitat de les coses"

Jaume Balmes *Vic, 1810-1848*