

Hiperparatireoidismo Primário Normocalcêmico

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Conflitos de Interesse

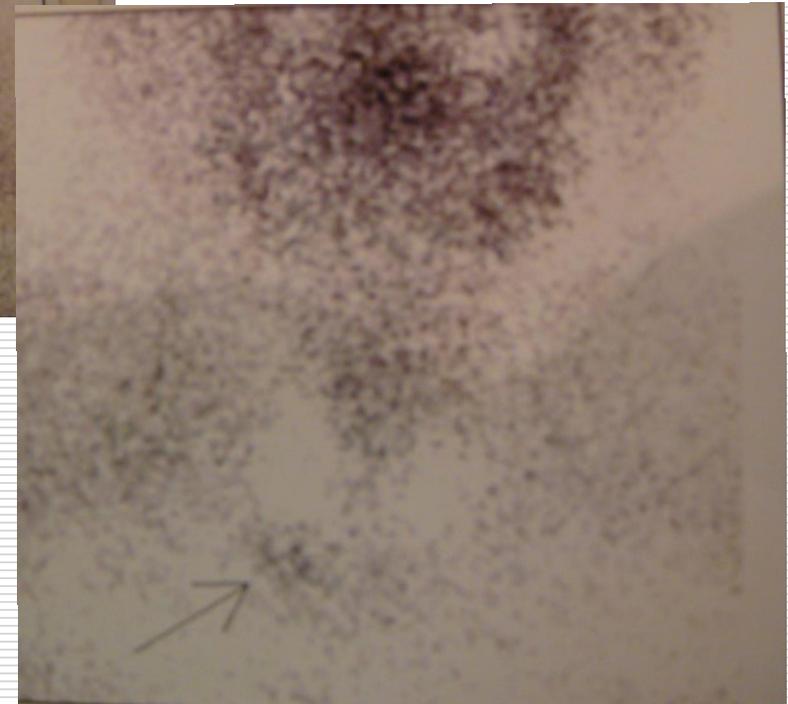
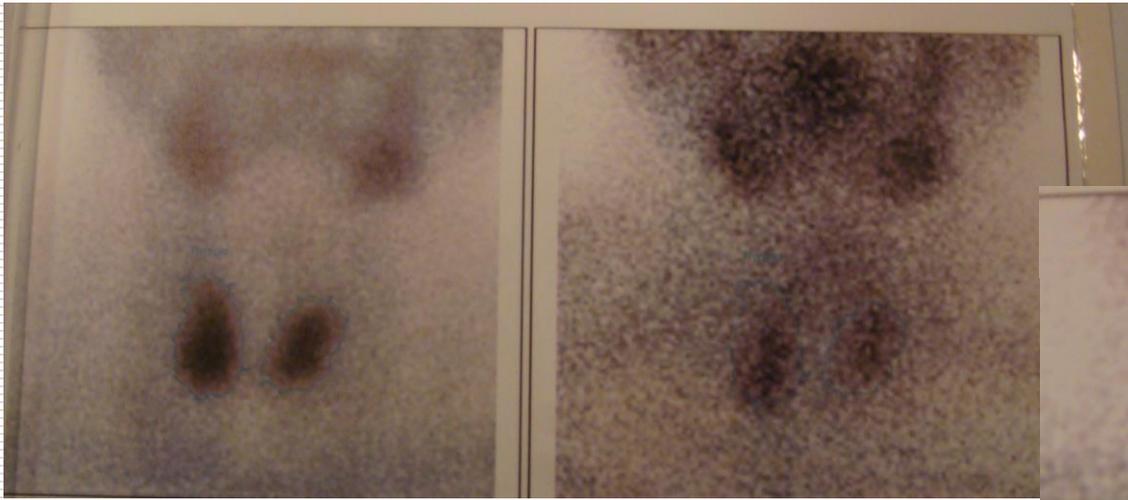
- Board Laboratórios:
 - Mantecorp
 - Lilly
 - Sandoz
- Palestrante para os Laboratórios:
 - Mantecorp
 - Lilly

Caso Clínico

- ABS; fem; 77 anos,
- Investigação Osteoporose → PTH elevado

	02/10	07/10	08/10	DMO	
Ca (mg/dl)		9.5	10.0		
PTH (pg/ml)	266	213	283		
Creatinina (mg/dl)	0,8				
Ca _i (mmol/L)	1.30 (ate 1.47)		1.45	11/09	10/10
25OHD (ng/ml)	27.4		43.8		
FA		77		Colo	0.559/-2.6 0.642/-1.9
P (mg/dl)		2.4		FT	0.624/-2.6 0.642/-2.5
Caur 24hrs		166		L1-L4	0.888/-1.4 0.881/-1.8
				Radio 33%	0.390/-3.5

Eletroforese de Proteínas – Normal
 Ecografia renal - Normal



- **Cintilografia Paratireóides**
 - Área de concentração Sestamibi em PID
- **US Tireoide 03/10**
 - Sem evidência nódulos tireóide ou paratireóide
- **RX Coluna**
 - Sem Fratura

- **HPT Clássico**

- ↑ Ca (>12mg/dL)
- Alterações multisistêmicas

- **HPT Assintomático**

- ↑ Ca (+1mg/dL)
- PTH 2x >

- **HPT Normocalcêmico**

- Ca sempre N
- PTH ↑

HPT fenótipo normocalcêmico – normohormonal



INCIDENTALOMA, NÃO HPT

- ? Alts. cognitivas
- ? Psicológicas

0.6 – 19% hipercalcêmicos

- **Excluir causas HPT 2ario**
 - Def. VD (>30ng/mL)
 - Insuf Renal
 - Hipercalcúria idiopática
 - Malabsorção
 - Medicções (litio;tiazídicos e Bfs Dmab)

Dx CLÍNICO

Dx LABORATORIAL

Dx ACOMPANHAMENTO

HPT Secundário - causas

Panel 2: Differential diagnosis of secondary hyperparathyroidism

Causas Gastrointestinais

Inadequate dietary intake

- Food intolerance (milk/lactose)
- Dietary restriction
- Phytates

Malabsorption

- Coeliac disease
- Pancreatic disease
- Inflammatory bowel disease
- Cystic fibrosis
- Gastric bypass surgery
- Corticosteroid treatment
- Ageing

Vitamin D-related causes

Sunlight deprivation

- Pigmented skin in northern latitudes
- Cultural effects, clothing

Dietary restriction

- Strict vegan, lactovegetarian

Liver/biliary disease

- Malabsorption, 25-hydroxylase deficiency, bile salts

Anticonvulsant treatment

- Altered vitamin D metabolism

Vitamin D dependent or resistant rickets or osteomalacia

- Hypophosphataemia

Kidney

Chronic kidney disease

- Hyperphosphataemia
- 1 α -hydroxylase deficiency: decreased 1,25-dihydroxyvitamin D
- Decreased clearance of parathyroid hormone: accumulation of C-terminal parathyroid hormone
- Parathyroid hormone resistance

Cellular/tissue-mediated causes

Bone

- Growth

Genetic

Pseudohypoparathyroidism

- Parathyroid hormone-receptor G-protein abnormal change/parathyroid hormone resistance

"Hungry bone" syndrome

Bisphosphonate treatment

Lactation/post-lactation

Metastatic prostate cancer

Kidney

- Diuretics
- Increased natriuresis
- Idiopathic hypercalciuria

Soft tissues

- Rhabdomyolysis: calcium deposition, hyperphosphataemia, acute renal failure
- Acute pancreatitis
- Sepsis
- Burns

Apresentação

TABLA 1.– *Características bioquímicas según tipo de hiperparatiroidismo*

Variable	Normocalcémico(35)	Hipercalcémico(50)	p
Calcemia mg/dl	9.6 ± 0.4	11.1 ± 1.4	0.000
Ca iónico mg%	4.7 ± 0.4	5.6 ± 0.4	0.000
Fósforo mg/dl	3.4 ± 0.5	3.0 ± 0.6	0.001
PTHi pg/ml	116.8 ± 71.6	125.6 ± 56.5	0.19
Creatinina mg/dl	0.8 ± 0.1	0.8 ± 0.1	0.30
25OHD ng/dl	34.2 ± 8.3	34.0 ± 24.3	0.09
FAL UI/l	192.0 ± 40.6	191.8 ± 75.3	0.29
CTX pg/ml	432.7 ± 256.6	528.6 ± 295.1	0.19
Calciuria 24 h (mg)	151.2 ± 50.6	323.4 ± 167.3	0.000

Evolução Laboratorial-15 anos de HPT 1ario

Index	Basal	5	10	13	15
		Anos de evolução			
Ca	10.5 ±.1	10.7 ± .1	10.8 ± .2	11.0 ± .2	11.1 ± .2
PTH	122 ± 10	119 ± 12	123 ± 14	124 ± 16	121 ± 18
Ca Ur	238 ± 19	215 ± 23	185 ± 32	247 ± 36	202 ± 36
25-OHD	21 ± 1	22 ± 2	22 ± 3	21 ± 3	20 ± 4
1,25-OH₂ D	50 ± 2	58 ± 3	54 ± 6	40 ± 5	48 ± 7

Evolução

- 187 NCPHPT
- 6 anos - 36 (19%) of 187 - Hipercalcemicos
- 2 anos - 24 em 2 anos

Šiprová H, Endocrine Practice, 2018

Complicações HPTP-N

Table 1 Comparison of demographical data betw

	NC PHPT (n = 23)	HC-PHPT (n = 284)	<i>p</i>
Age (years)	9.98 ± 0.29	11.35 ± 0.42	<0.001
Gender (f/m)			
Hypertension (%)	2.80 ± 0.64	2.61 ± 0.49	0.153
Impaired fasting glucose + diabetes mellitus (%)			
Osteopenia (%)	142.7 ± 139.9	163.8 ± 190.5	0.538
Osteoporosis (%)	28.37 ± 7.07	12.81 ± 11.41	0.001
Nephrolithiasis (%)			
Calcium (mg/dl)	9.98 ± 0.29	11.35 ± 0.42	<0.001
Phosphorus (mg/dl)	2.80 ± 0.64	2.61 ± 0.49	0.153
PTH (pg/ml)	142.7 ± 139.9	163.8 ± 190.5	0.538
25 OH vitamin D (ng/ml)	28.37 ± 7.07	12.81 ± 11.41	0.001
Creatinine (mg/dl)	0.68 ± 0.14	0.71 ± 0.16	0.467
24-h urine calcium (mg/l)	271.5 ± 112.5	359.2 ± 196.9	0.021
ALP (U/l)	81.2 ± 25.2	117.9 ± 63.1	0.001
FBG (mg/dl)	93.2 ± 10.2	93.1 ± 14.1	0.970
TSH (μIU/ml)	2.40 ± 1.38	1.79 ± 1.14	0.011
Triglyceride (mg/dl)	142.3 ± 69.9	144.8 ± 64.6	0.871
LDL-C (mg/dl)	145.2 ± 27.6	125.7 ± 33.2	0.022
HDL-C (mg/dl)	50.2 ± 13.7	51.3 ± 12.6	0.721
Uric acid (mg/dl)	4.67 ± 1.43	4.86 ± 1.17	0.549

Patients with normocalcemic primary hyperparathyroidism may have similar metabolic profile as hypercalcemic patients

Feyza Yener Ozturke cols

Table 2 Antropometric and biochemical data of the HC-PHPT, NC-PHPT patients and controls evaluating the metabolic profile

	NC-PHPT (Mean ± S.D.)	HC-PHPT (Mean ± S.D.)	Control (Mean ± S.D.)	<i>P</i>
Weight (kg)	79.52 ± 13.95	77.38 ± 15.74	77.23 ± 12.37	0.805
BMI (kg/m ²)	31.52 ± 5.63	31.00 ± 6.15	29.51 ± 5.35	0.394
WC (cm)	103.88 ± 11.83	106.54 ± 12.05	97.00 ± 10.09	0.007 ^a
SystolicBP (mmHg)	127.80 ± 17.92	128.33 ± 17.86	120.17 ± 23.87	0.253
DiastolicBP (mmHg)	78.40 ± 11.43	79.79 ± 9.83	78.50 ± 12.05	0.888
Glucose (mg/dL)	102.52 ± 17.29	96.13 ± 13.75	91.90 ± 7.42	0.015 ^b
Insulin (IU/L)	11.77 ± 5.55	18.43 ± 18.44	11.25 ± 6.61	0.258
HOMA-IR	3.01 ± 1.54	4.65 ± 5.18	2.60 ± 1.57	0.215
HbA1c (%)	5.93 ± 0.66	6.20 ± 0.76	5.94 ± 0.26	0.170
Total-C (mg/dL)	203.08 ± 35.35	210.29 ± 36.03	230.17 ± 38.17	0.021 ^c
Triglyceride (mg/dL)	137.04 ± 69.85	157.42 ± 75.58	136.63 ± 83.60	0.553
HDL-C (mg/dL)	52.72 ± 10.46	51.79 ± 12.42	60.97 ± 19.35	0.051
LDL-C (mg/dL)	121.28 ± 34.04	126.79 ± 32.54	140.30 ± 31.94	0.091

	NC-PHPT (Mean ± S.D.)	HC-PHPT (Mean ± S.D.)	Control (Mean ± S.D.)	<i>P</i>	
Age (years)	52.88 ± 11.71	56.63 ± 12.70	53.63 ± 7.43	0.429	
Cr (mg/dL)	0.75 ± 0.1	0.74 ± 0.13	0.80 ± 0.11	0.165	
Cr Cl (mL/min)	107.47 ± 22.91	98.45 ± 26.43	-	0.249	
Ca (mg/dL)	9.71 ± 0.34	11.52 ± 1.30	9.58 ± 0.32	<0.001 ^a	
PO ₄ (mg/dL)	3.26 ± 0.47	2.71 ± 0.54	3.66 ± 0.49	<0.001 ^b	
PTH (pg/mL)	91.61 ± 17.31	170.28 ± 111.26	47.84 ± 9.49	<0.001 ^b	
24hrUCa (mg/24h)	212.71 ± 22.91	281.70 ± 129.65	-	0.052	
ALP (U/L)	78.64 ± 22.95	112.04 ± 67.68	69.23 ± 21.47	<0.001 ^a	
25OHD ₃ (ng/mL)	17.04 ± 11.32	13.51 ± 9.01	-	0.331	
	n (%)	n (%)	n (%)		
Gender	Female	23 (92%)	20 (83,3%)	21 (70%)	0.110
	Male	2 (8%)	4 (16,7%)	9 (30% ⁹)	

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Feyza Yener Ozturke cols

Table 3 Comparisons of the prevalence of metabolic diseases of HC-PHPT, NC-PHPT and controls

	NC-PHPT		HC-PHPT		Control		<i>p</i>
	(n)	(%)	(n)	(%)	(n)	(%)	
DM/IGT	7/25	28%	3/24	12.5%	0/30	0%	0.008 ^a
Anti-HG Tx	6/25	24%	3/24	12.5%	0/30	0%	0.020 ^a
HT	12/25	48%	15/24	62.5%	6/30	20%	0.005 ^b
Anti-HT Tx	11/25	44%	14/24	58.3%	4/30	13.3%	0.002 ^b
HL	9/25	36%	8/24	33.3%	19/30	63.3%	0.045 ^c
Anti-HL Tx	6/25	24%	3/24	12.5%	1/30	3.3%	0.072
MS	13/25	52%	16/24	66.7%	9/30	30%	0.025 ^d

Trabecular Bone Score in NPHPT

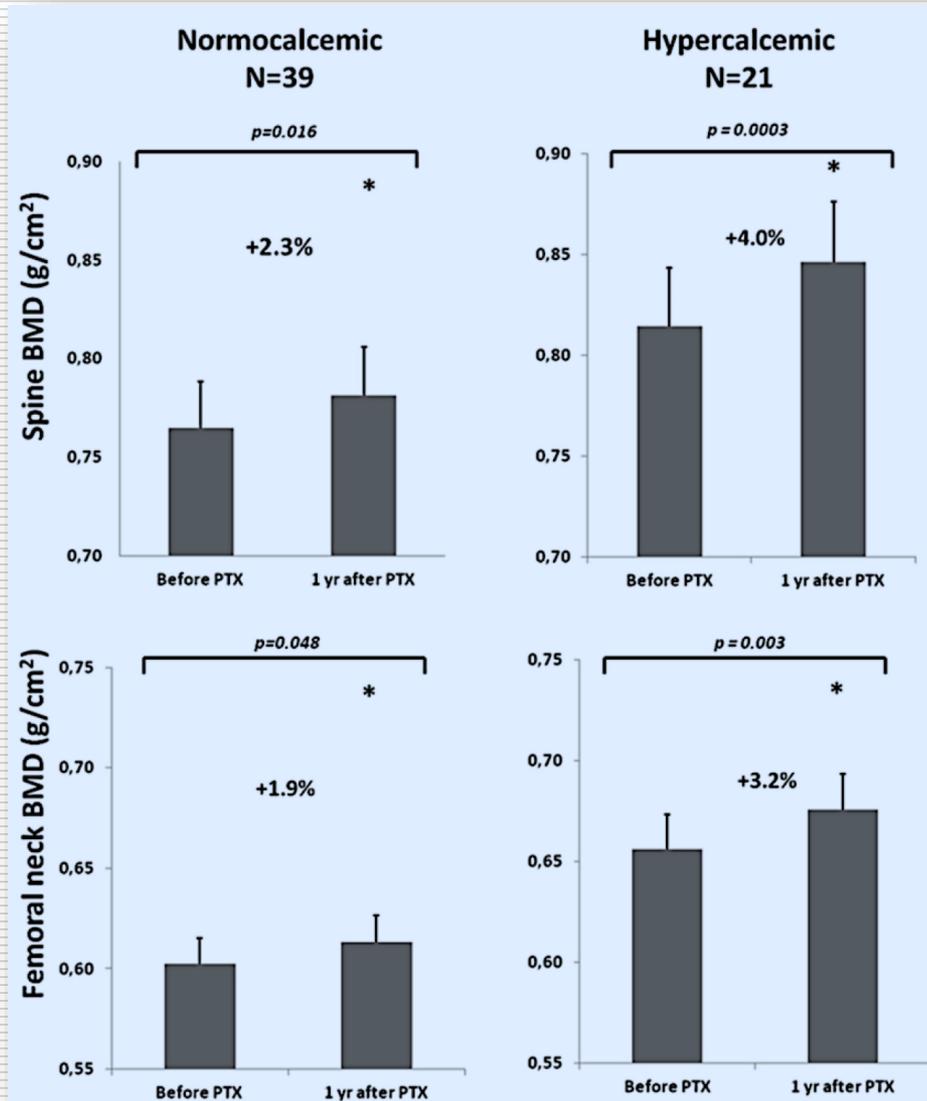
Patient Characteristics			
	NHPT (n = 24)	HHPT (n = 15)	Control (n = 24)
Age (years)	66 ± 13	64 ± 12	63 ± 12
Sex ratio (female/male)	20/4	12/3	21/3
BMI	26 ± 4	27 ± 5	26 ± 6
PTHi (pg/mL)	98 ± 22 ^a	134 ± 49	25 ± 20 ^{b,c}
25-Hydroxyvitamin D (ng/mL)	27 ± 11	25 ± 18	19 ± 14
Serum calcium (mg/dL)	9.5 ± 0.4 ^d	10.6 ± 0.6	9.4 ± 0.3 ^e
Serum phosphorus (mg/dL)	3.4 ± 0.5 ^f	3.02 ± 0.6	3.6 ± 0.5 ^g
TBS	1.228 ± 0.1	1.221 ± 0.1	1.328 ± 0.1 ^h
z-score TBS	-0.60 ± 0.47	-0.76 ± 1.14	-0.52 ± 1.18 ⁱ
TBS <1.200 (Degraded)	37%	40%	4% ^j
L1-L4 DXA (g/cm ²)	1.004 ± 0.17	0.999 ± 0.2	1.100 ± 0.16
Femoral neck (g/cm ²)	0.754 ± 0.07	0.793 ± 0.01	0.841 ± 0.07 ^k
Total hip (g/cm ²)	0.822 ± 0.11	0.850 ± 0.10	0.909 ± 0.09 ^l
Osteoporosis %	29%	33%	0% ^m

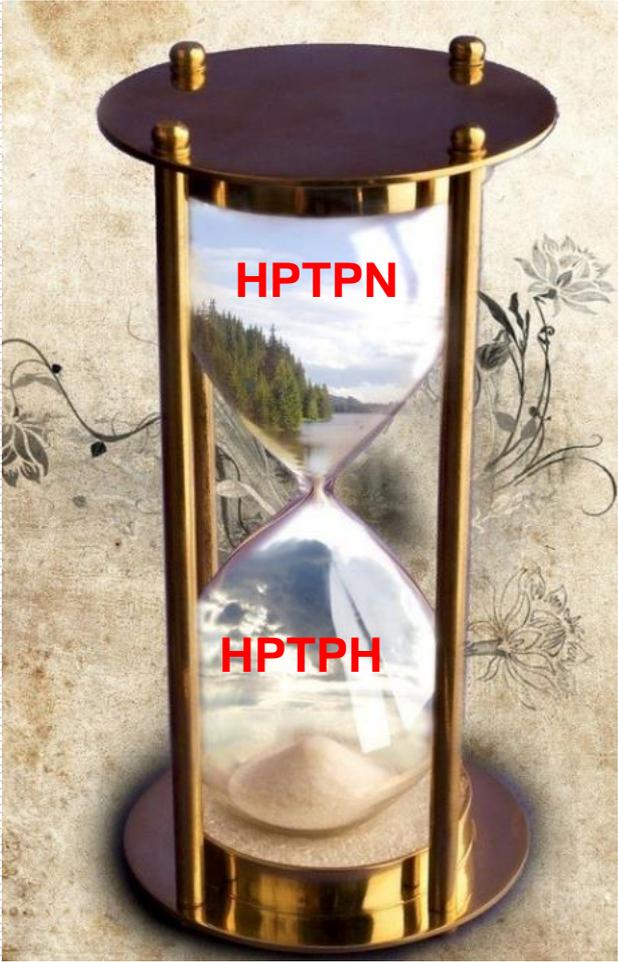
Tratamento Cirúrgico Hiperparatireoidismo Primário

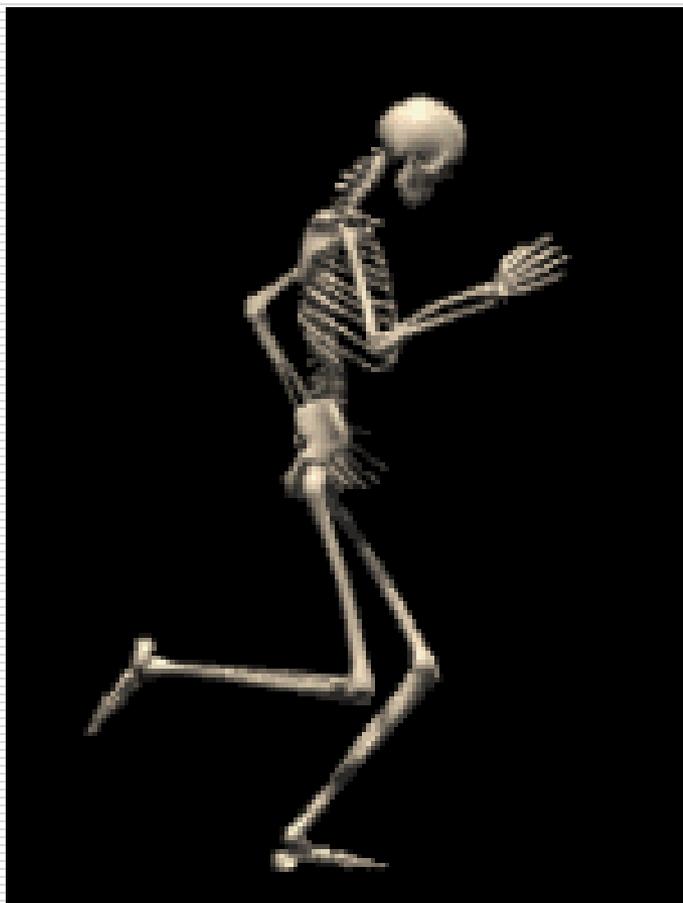
- **Indicado:**

- **Todos os sintomáticos**
- Idade < 50 anos
- Cálcio sérico > 1mg/dl do limite superior
- Osteoporose na DMO ou história fratura por fragilidade (fazer RX coluna)
- Clearance de Creatinina <60 ml/min
- Cálcio Ur /24 hrs > 400mg ou Nefrocalcinose ou cálculos renais

Pós-Tratamento Cirúrgico







Obrigada !

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