Retrospective evaluation of adrenal incidentalomas in a tertiary care institution

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Introduction- Objective

Adrenal tumours are nowadays a common incidental finding in the daily clinical pactice. Their prevalence has increased due to more widespread available radiological imaging methods. The majority of epidemiological studies worldwide have shown that most of these tumours are benign, small and hormonally inactive.

Aim of this retrospective study was the evaluation of all patients with adrenal tumours who were treated in our tertiary department of endocrinology between 1.1.1999-1.10.2013.

Patients- Methods

All patients treated because of adrenal tumours were evaluated (n=189, female 110 female, male 79, mean age of 57,5 years). The total of the patient cohort was evaluated with basic and analytical testing in order to check for hormonal activity. The classification was made according to adrenal tumour type (localization, tumour size and tumour dignity in case of conduction of a postinterventional histopathological analysis) and patient characteristics (gender, age at diagnosis).

Results

133/189 (70,4%) of the patients had non-hormone secreting tumours (non-functional incidentalomas), 18 (9,5%) had pheochromocytoma, 13 (6,9%) Conn syndrome, 12 (6,3%) Cushing syndrome, 1 AGS and 2 sexual hormone secreting tumours. 10 (5,3%) tumours could not be classified due to non specific results of the hormonal tests. Nearly all patients with Cushing syndrome were female (11 women:1 male). 164 (87%) tumours were unilateral und frequently on the left adrenal gland (n=96; 50,8%), while 68 (36%) were localised on the right adrenal gland. 25 (13,2%) patients had bilateral tumours. Tumour size <3 cm occurred in 120 (63,5%), size 3-6 cm in 54 (28,6%) and >6 cm in 15 (7,9%) of the cases. 61 (32% of the total cohort) patients underwent adrenalectomy. A main indication for surgery was the establishment of a hormonal activity of the tumour (88,8% of these patients were operated). 8 patients (4% of the total cohort) were evaluated with ultrasound-guided biopsy. Malignancy was established after surgery or biopsy in 10 patients (5,3% of the study cohort) (n=3 with hormon-inactive tumours, thereof 2 metastases from other primary tumours, n=3 with pheochromocytoma, n=2 with Cushing syndrome and n=2 sexual hormone secreting tumours). Benignity was histopathologically confirmed in 56 patients. 2 surgical specimens, both pheochromocytomas, were suspicious of malignant alterations and 1 biopsy was not diagnostic.

Tab.1: Adrenal tumour type and classification in relation to age and gender

Tumour type	Total cohort (mean age at diagnosis)	Male (mean age at diagnosis)	Female (mean age at diagnosis)
Incidentaloma hormonally inactive	133 (59,6)	58 (61,7)	75 (58,1)
Pheochromocytoma	18 (58,4)	9 (53,8)	9 (63,1)
Conn syndrome	13 (41,8)	6 (43,7)	7 (40,3)
Cushing syndrome	12 (52,6)	1 (45,0)	11 (53,3)
AGS	1 (49,0)	1 (49,0)	0 (0)
Sexual hormone secreting tumour	2 (59,5)	1 (66,0)	1 (53,0)
Indeterminate	10 (53,7)	3 (46,3)	7 (56,9)
Total	189 (57,5)	79 (58,5)	110 (56,7)

Tab.2: Adrenal tumour type and classification according to tumour localization

Tumour type	Left	Right	Bilateral
Incidentaloma hormonally inactive	64	52	17
Pheochromocytoma	11	6	1
Conn syndrome	6	5	2
Cushing syndrome	9	2	1
AGS	0	0	1
Sexual hormone secreting tumour	1	1	0
Indeterminate	5	2	3
Total	96	68	25

Tab.3: Adrenal tumour type and classification according to tumour size

Tumour type	< 3 cm	3-6 cm	> 6 cm
Incidentaloma hormonally inactive	91	36	6
Pheochromocytoma	4	11	3
Conn syndrome	11	1	1
Cushing syndrome	7	2	3
AGS	0	1	0
Sexual hormone secreting tumour	0	0	2
Indeterminate	7	3	0
Total	120	54	15

Tab.4: Dignity of adrenal tumours (histopathologically confirmed)

Tumour type	Benign	Malignant
Incidentaloma hormonally inactive	21	3
Pheochromocytoma	12	3 (+ 2 semimalignant)
Conn syndrome	11	0
Cushing syndrome	9	2
AGS	0	0
Sexual hormone secreting tumour	0	2
Indeterminate	3	0
Total	56	10 (+2 semimalignant)

Conclusions

The retrospective evaluation of all patients with adrenal tumours in a tertiary care institution confirmed that the majority of these tumours are small (size <3 cm), benign and hormonally inactive. 24% of the adrenal tumours were hormonally active. 5% of the tumours were malignant and 1% semimalignant. An analytic hormonal testing is indicated. Adrenalectomy presents as the therapeutic method of choice in big and confirmed hormone-secreting adrenal tumours.