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Concurrent endocrine and other surgical procedures: an institutional experience



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ABSTRACT

Introduction: The number of endocrine procedures, specifically parathyroidectomy, thyroidectomy, and adrenalectomy, being performed is increasing. There is a paucity of literature on the feasibility of combining these procedures with other surgical procedures. Therefore, the aim of this study was to determine the effect of performing concurrent surgical procedures on postoperative outcomes.

Methods: This is a single institution retrospective review of multiple prospectively maintained databases of patients who underwent elective thyroidectomy, parathyroidectomy, and/or adrenalectomy in combination with another procedure. The other procedures included soft tissue, breast or hernia, abdominal major, abdominal minor, cervical, and “other”. Demographics, operative details, length-of-stay, and 30-d outcomes were reviewed. “Endocrine-specific” complications included recurrent laryngeal nerve injury, hypoparathyroidism, cervical wound infection, hematoma, and other.

Results: The cohort comprised 104 patients. Overall, 19 (18%) patients had 21 complications, including endocrine-specific complications in eleven (11%) patients. These eleven complications included recurrent laryngeal nerve injury ($n = 3$; 3%), hematoma ($n = 2$; 2%), wound infection ($n = 1$; 1%), transient hypoparathyroidism ($n = 2$; 2%), and other ($n = 3$; 3%). The remaining complications included three (3%) general complications, six (6%) patients with complications related to the concurrent procedure, and one patient who underwent an open adrenalectomy and hysterectomy and developed a midline wound dehiscence, which could not be specifically attributed to either procedure.

Conclusions: Less than 5% of patients undergoing a surgical endocrine procedure underwent a concurrent procedure, ranging from soft tissue to major abdominal. Short-term endocrine-specific complications were managed safely, suggesting that concurrent procedures can be considered, with minimal effect on patient outcomes.

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Introduction

An increasing number of surgical endocrine operations (thyroidectomy, parathyroidectomy, and adrenalectomy) are being performed in the United States each year; approximately, 80,000 were performed in 2004, and age-adjusted population projections have predicted that over 100,000 surgical endocrine procedures will be performed by 2020.¹ In general, cervical endocrine procedures have a low risk of morbidity and mortality, with reported rates of permanent recurrent laryngeal nerve (RLN) injury ranging from 1%-3% and of permanent hypoparathyroidism from 2%-3%.^{2,3} Adrenalectomy, for which the laparoscopic approach is now the standard of care, is also associated with low rates of morbidity, with reported complication rates of 5.6%-14% at high-volume centers.^{4,5}

In patients who have indications for a surgical procedure for an unrelated disease process, there may be benefit to performing the endocrine procedure at the same time. Currently, over 900,000 laparoscopic cholecystectomies, 1.4 million integumentary system, and nearly one million abdominal wall hernia repairs are performed annually in the United States.⁶⁻⁸ Combining elective operations may save patients from additional cost and exposure to anesthetic.⁹ Furthermore, patients with inherited endocrine diseases, such multiple endocrine neoplasia (MEN) 1 or 2, represent an additional population that is likely to have indications for multiple surgical interventions and may benefit from concurrent cervical and abdominal endocrine procedures.

It is important that both patients and providers should be aware of the risks and benefits of undergoing concurrent endocrine and other surgical interventions. To our knowledge, no studies have compared rates of complications in patients undergoing endocrine procedures alone versus concurrent endocrine and other surgical procedures. We hypothesized that complication rates would be no different in patients undergoing concurrent endocrine and other operations. The purpose of this study was to examine the postoperative complication rates in patients who underwent concurrent procedures and to compare these rates with patients who underwent endocrine procedures alone.

Methods

This is a retrospective review of multiple prospective databases of 2930 patients who underwent thyroidectomy, parathyroidectomy, or adrenalectomy at a single academic institution. The databases spanned the years of 1999-2015 (parathyroid), 2009-2015 (thyroid), and 2002-2015 (adrenal). Study approval, which included a waiver of informed consent, was obtained from the Medical College of Wisconsin Institutional Review Board. All adult patients (>18 y) who underwent thyroidectomy, parathyroidectomy, and adrenalectomy who also underwent a concurrent surgical procedure were included; patients who underwent concurrent parathyroidectomy and thyroidectomy were excluded.

Patient demographic and clinical data were collected; this included indications for surgery, operative findings,

length-of-stay, rates of readmission, and final pathology. The concurrent procedures performed included skin, soft tissue, breast or hernia, abdominal major, abdominal minor, cervical, and "other" (Table 1). The "other" group comprised orthopedic and cardiothoracic interventions. Patients who had thyroidectomy or parathyroidectomy in combination with adrenalectomy (combined endocrine group) also were included.

Thirty-day outcomes were examined; the time frame of 30-d was chosen, as it is the standard for Medicare, Medicaid, and other agencies. Complications were divided into "cervical endocrine-specific" (RLN injury, hypoparathyroidism, hematoma requiring reoperation, wound infection, and other

Table 1 – Concurrent endocrine and other surgical procedures (excluding seven combined endocrine procedures).

Procedure, total# (n = 97)	Parathyroid, n = 30 (29%)	Thyroid, n = 40 (38%)	Adrenal, n = 27 (26%)
SSB/Hernia	12 (40%)	19 (48%)	8 (30%)
Soft tissue	6	9	1
Hernia	6	4	6
Breast	0	4	1
Port removal	0	2	0
Abdominal minor	7 (23%)	7 (18%)	4 (15%)
Laparoscopic cholecystectomy	5	3	4
Ileostomy closure	1	0	0
Diagnostic laparoscopy	1	1	0
Salpingophorectomy	0	2	0
Baclofen pump	0	1	0
Abdominal major	6 (20%)	4 (10%)	14 (52%)
Nephrectomy	1	2	0
Pancreatectomy	3	2	4
Gastrectomy	0	0	2
Open cholecystectomy	0	0	4
Other laparotomy	2	0	4
Other	1 (3%)	3 (8%)	1 (4%)
Orthopedic	1	1	0
Cardiothoracic	0	2	1
Neck	4 (13%)	7 (18%)	0 (0%)
Parotidectomy	1	2	0
Tonsillectomy	1	1	0
Laryngoscopy	1	1	0
Excision of soft palate	1	0	0
Disc fusion	0	2	0
VATS thymectomy	0	1	0

SSB = skin, soft tissue, breast, hernia; VATS = video-assisted thoracoscopic surgery.

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