科技部補助專題研究計畫成果報告
期末報告

戰後以來甲狀腺亢進疾病的歷史：疾病、治療與病人經驗(第2年)

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計 畫 主 持 人 ： 王秀雲

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報 告 附 件 ： 出席國際會議研究心得報告及發表論文

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中 華 民 國 105 年 05 月 04 日

中 文 摘 要 ： 本研究主要分兩個部分，分別為甲狀腺亢進疾病及治療的歷史，兩者均已完成研討會論文各一篇(如後)，且分別於幾個不同的學術研討會上發表。在治療的歷史面向，主要的研究問題是，為何同樣是甲狀腺亢進，在不同的社會脈絡之下，治療的方式非常不同。例如，美國自戰後逐漸以碘131(RAI)為主要方式，而直至1980年代末，手術切除甲狀腺仍是台灣主要方式。根據Creager的研究，美國由於戰後原子能和平用途的推動，積極發展核能醫學，大量生產同位素並外銷到美國以外的許多國家。 同位素不僅使用於許多的生醫實驗，也用於許多疾病的治療，包括癌症及甲狀腺亢進。相對之下，台灣作為技術輸入國，同位素的使用的條件不若美國的情形。除了核子醫學起步較慢，且從核子醫學早期先鋒人物的訪談可知，初期乃因國家政策的強勢主導才使其持續發展。 此外，放射性物質的相關管制也不利於此技術的擴展。最重要的乃是，外科手術在台灣歷史相對較長，在戰後即已相當成熟，外科診所遍及各地，而甲狀腺切除手術也已經行之有年。

在疾病歷史與病人經驗方面，甲狀腺相關疾病，包括甲狀腺腫、甲狀腺瘤、大脖子乃至晚近的甲狀腺亢進，病因不同，醫學知識也有所改進。1960年代中期之後，自體免疫學的發展，使得科學界逐漸將甲狀腺亢進歸為自體免疫疾病的一種。自體免疫相關疾病，包括通常以女性居高(甲狀腺亢進的女男比約為7:1)。在大眾文化的方面，在工業化中的台灣社會則傾向將此疾病歸因為工業化所帶來的緊張壓力。

中 文 關 鍵 詞 ： 甲狀腺亢進、核子醫學、碘131、自體免疫、生活壓力與疾病、冷戰醫學史

英 文 摘 要 ： This paper examines the history of the treatments for hyperthyroidism since WWII in Taiwan. Sources include medical journals, newspaper reports, and oral history interviews of surgeons and patients. Surgical removal of the thyroid gland was first offered by medical missionaries in the early twentieth century, and western trained Taiwanese surgeons continued the trend. Beginning in the 1950s, radioactive iodine (RAI) treatment (imported from the US) also became available and was presented by its promoters as one of the major breakthroughs in the nuclear age. Even though the ROC (Taiwanese) government-in-exile upheld RAI as the medical counterpart of nuclear power and ushered it in with staged rituals, RAI did not overtake the surgical approach as it did in the US. As late as the 1990s, surgery was still the major treatment option for this common disease in Taiwan. The common people also supported the surgical option . In the 1970s, thyroidectomy was one among a number of excessively performed surgeries in Taiwan (the others were hysterectomy, stomach removal, and appendectomy). The surgical clinic was a common establishment throughout Taiwan by the mid-twentieth century. However, RAI was a latecomer and, with the

exception of a few prestigious hospitals in Taipei such as the National Taiwan University Hospital, most medical institutions and clinicians were not equipped to use the substance. In the popular imagination, RAI was equated with the aftermath of the atomic bombing of Japan. The ways in which surgery was preferred point to the material conditions of medical practice as well as the post-Hiroshima image of radioactive materials.

英文關鍵詞：hyperthyroidism, nuclear medicine, autoimmune disease, stress and disease, cold war medicine

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科技部補助專題研究計畫成果報告

（□期中進度報告/□期末報告）

（計畫名稱）

戰後以來甲狀腺亢進疾病的歷史：疾病、治療與病人經驗

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執行期間：　2013 年 8 月 1　日至 2016　年 1 月 31　日

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計畫主持人：王秀雲

共同主持人：

計畫參與人員：黃翊峰 張堯涵(研究生助理)

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中　華　民　國　105 年　5　月 4　日

本研究主要分兩個部分，分別為甲狀腺亢進疾病及治療的歷史，兩者均已完成研討會論文各一篇(如後)，且分別於幾個不同的學術研討會上發表。在治療的歷史面向，主要的研究問題是，為何同樣是甲狀腺亢進，在不同的社會脈絡之下，治療的方式非常不同。例如，美國自戰後逐漸以碘 131(RAI)為主要方式，而直至 1980 年代末，手術切除甲狀腺仍是台灣主要方式。根據 Creager 的研究，美國由於戰後原子能和平用途的推動，積極發展核能醫學，大量生產同位素並外銷到美國以外的許多國家。[1]同位素不僅使用於許多的生醫實驗，也用於許多疾病的治療，包括癌症及甲狀腺亢進。相對之下，台灣作為技術輸入國，同位素的使用的條件不若美國的情形。除了核子醫學起步較慢，且從核子醫學早期先鋒人物的訪談可知，初期乃因國家政策的強勢主導才使其持續發展。[2]此外，放射性物質的相關管制也不利於此技術的擴展。最重要的乃是，外科手術在台灣歷史相對較長，在戰後即已相當成熟，外科診所遍及各地，而甲狀腺切除手術也已經行之有年。

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Abstract

“Atomic Bombs” or the Knife: Competing Treatments for Hyperthyroidism since WWII in Taiwan

This paper examines the history of the treatments for hyperthyroidism since WWII in Taiwan. Sources include medical journals, newspaper reports, and oral history interviews of surgeons and patients. Surgical removal of the thyroid gland was first offered by medical missionaries in the early twentieth century, and western trained Taiwanese surgeons continued the trend. Beginning in the 1950s, radioactive iodine (RAI) treatment (imported from the US) also became available and was presented by its promoters as one of the major breakthroughs in the

[1] Angela N.H. Creager, *Life Atomic: A History of Radioisotopes in Science and Medicine* (Chicago: University of Chicago Press, 2013)

[2] Yao 醫師訪談，台南，2015/9/8。

nuclear age. Even though the ROC (Taiwanese) government-in-exile upheld RAI as the medical counterpart of nuclear power and ushered it in with staged rituals, RAI did not overtake the surgical approach as it did in the US. As late as the 1990s, surgery was still the major treatment option for this common disease in Taiwan. The common people also supported the surgical option . In the 1970s, thyroidectomy was one among a number of excessively performed surgeries in Taiwan (the others were hysterectomy, stomach removal, and appendectomy). The surgical clinic was a common establishment throughout Taiwan by the mid-twentieth century. However, RAI was a latecomer and, with the exception of a few prestigious hospitals in Taipei such as the National Taiwan University Hospital, most medical institutions and clinicians were not equipped to use the substance. In the popular imagination, RAI was equated with the aftermath of the atomic bombing of Japan. The ways in which surgery was preferred point to the material conditions of medical practice as well as the post-Hiroshima image of radioactive materials.

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"Atomic Bombs" or the Knife: Competing Treatments for Hyperthyroidism since WWII in Taiwan

"Some doctors 'misdiagnosed' or 'intentionally misdiagnosed' patients, and treated cases of anxiety disorder as thyrotoxicosis. They even cut off patients' thyroids…. Whoever has the above symptoms should go to a reliable physician or hospital for detailed and correct examination."[i] (Zheng Tai-an, M.D., 1978)

"In some hospitals in central and southern Taiwan, whenever they see a patient with a thyroid tumor, [regardless of its nature] they all resort to surgery." (Liao Kuang-yi,

M.D., 1980)

Thyroidectomy—the surgical removal of the thyroid—has been a treatment for both goiter and hyperthyroidism since the early twentieth century. In the case of hyperthyroidism in the West after WWII, however, radioactive iodine (RAI) became the standard treatment, while surgery came to be used only in special circumstances such as ophthalmopathy (i.e., eye problems).[ii] In East Asia, Koreans likewise came to resort to RAI in most cases [after WWII].[iii]. In contrast, even though RAI was introduced to Taiwan in the 1950s, surgery remained the dominant approach until at least the late 1990s As the opening quotations suggest, thyroidectomy was excessive in post-WWII Taiwan across various contexts of misdiagnosis and over-reaction, including benign tumor cases.

Today, the treatments for hyperthyroidism include surgical removal of the thyroid gland, anti-thyroid medication, and radioactive iodine (RAI, nicknamed the atomic cocktail). Currently, there are approximately 10,000 thyroidectomies being performed annually in Taiwan.[iv] During the period between 2000 and 2004, according to National Health Insurance figures, among 1157 new cases of hyperthyroidism, 949 (82%) took anti-thyroid medication, 202 (17.5%) received surgery, and only 6 cases (0.5%) used RAI treatment.[v] Since the remission rate is high for anti-thyroid medication treatment, surgery and RAI are seen as the more permanent solutions.

This paper traces the history of the competing treatments for hyperthyroidism[vi] in Taiwan since WWII, especially surgery and RAI. By doing so, I suggest that what was seen as the best treatment is historically contingent, depending on the social and material conditions of the treatment chosen, such as practitioners' skills, technological

capacity, and patients' preconceptions. The fact that surgical clinics became relatively widely established after WWII and the limited access and handling of radioactive iodine are the two most critical aspects of the history. RAI and thyroidectomy co-existed as the treatment options, yet the two flourished in very different cultural contexts. The rivalry between the two reveals the tensions that existed between a number of medical specialties: internal medicine, psychiatry, surgery, and nuclear medicine.

Surgery

The dominance of surgery in medicine from the early twentieth century and the prevalence of thyroid goiter in Taiwan are two crucial aspects of the history of thyroidectomy. Since the introduction of missionary medicine in the nineteenth century, surgery was a distinguishing characteristic of western medicine. Among the main characters of surgical medicine in Taiwan were George L. Mackay (1844-1901) and David Landsborough (1870-1957). The surgical clinic was a common establishment throughout Taiwan by the mid-twentieth century.[vii] In the popular media, medical journals, and recollections of surgeons, surgical achievements were often celebrated as "medical breakthroughs," which included operating on esophagus tumors, techniques for cutting parts of the liver, cutting the thyroid and stomach, and other surgical interventions. Surgeons also established their fame and authority based on certain surgical procedures.

One of the reasons surgeons were able to develop their surgical skills was the fact that endemic goiter was a serious issue, and surgeons had abundant opportunity to do thyroidectomy. According to a survey published in 1940, its prevalence was 6.68% in Taipei, Taiwan, compared to 0.88% in Sapporo, Japan. The same survey also compared different ethnic groups in colonial Japan—Japanese 18%, Taiwanese

44.7%, and aborigines 61.1%. Goiter was also more prevalent in certain areas than others, and in the prevalent areas, even the pigs had a higher rate of goiter. The government of Taiwan initiated an iodine-salt project in 1958 and full coverage was completed in 1967, after which the goiter problem greatly improved. Yet, it did not completely vanish, and public health experts pointed to the problem of the source of drinking water. Island-wide running water did not become available until late 1980s.[viii]

During the early decades of the twentieth century, surgical removal of the thyroid gland was offered by medical missionaries and western-trained Japanese surgeons.[ix] (Taiwan was under Japan in the period between 1895 and 1945). For example, Sawada Heijirou （澤田平十郎）, one of the leaders of Taipei Imperial University (now National Taiwan University) during the colonial period, was known for his thyroidectomy technique. Li Tien-yu (1913-1995), one of the prominent surgeons at National Taiwan University Hospital, remembered the thrill of doing thyroidectomy as an intern during the 1930s.[x] Harry Miller (1879-1977), the American medical missionary who travelled around Asia, was also known for his surgical itinerary.

Yet, surgery was not always a good solution, at least before the 1970s. Reports of post-surgical death were not uncommon in the newspapers. For example, in 1953, surgeon Fu Chu Xiu performed a thyroidectomy on his cousin, Fu Ying Mei. A few hours later, the patient died from heart failure due to a drastic change in blood pressure.[xi] Cases of death probably served as a form of regulation on the extent to which a surgeon might be inclined to do surgery. Thyroidectomy, as a type of surgery, was seen as a procedure of moderate difficulty.[xii] Compared to other surgeries, it was not the most frequently performed type. For example, during the year 1958, the annual statistics of Xu Clinic in Kaohsiung City, there were 127 cases of

thyroidectomy, 12% of all total surgeries (1044).[xiii]

However, some surgeon still made their fame by doing thyroidectomy. Take the aforementioned Harry Miller of the Seventh Day Adventist Hospital (later Taiwan Adventist Hospital) as an example. A news report marveled at his achievement: "During the 1920s, he was traveling around in Asia, and he performed 6 to 8 thyroidectomies daily. He had done about 3000 surgeries, and other surgeons remarked on how incredible this was.[xiv] Miller began his missionary career in Asia in 1903, and he established the Seventh Day Adventist Hospital in 1954 in Taipei.[xv] According to Miller's biography, Miller had successfully reduced the mortality rate after surgery from 50% to 1%, and throughout his life he performed a total of 6000 thyroidectomies.[xvi] Miller's case reveals the true importance of thyroidectomy. In addition, Miller traveled around Asia to demonstrate his surgical technique.
Due in part to the reduced mortality rate and the flourishing of surgical clinics during the 1960s, by the 1970s thyroidectomy became one among a number of excessively performed surgeries in Taiwan (the others were hysterectomy, stomach removal, and appendectomy).

Many contemporary accounts in the media indicate that cutting off certain body parts became very common in the 1970s, including hysterectomy, stomach removal, and appendectomy. In 1977, a legislative Yuan member Wei Pei-lan raised the question of surgical abuse: "Certain medical practitioners, in order to make money from labor insurance, have performed unnecessary thyroidectomy on women laborers."[xvii] Three years later, a National Taiwan University hospital surgeon, Liao Kaung-yi, was quoted as saying, "Spare the knife, thyroid tumors may be malignant or benign, not all require surgery." He also accused some hospitals in mid- and southern Taiwan as follows: "Whenever they see patients with thyroid tumor, they all use the knife."[xviii] By 1994, there were rumors of "thyroid-less villages" along with

rumors of "uterusless villages." There are certainly differences between hysterectomy and thyroidectomy, yet both uterus and thyroid were allegedly among the most frequently cut off main body parts. In the meantime, probably as an attempt to regulate the practice, the Taiwan Surgical Association and the Endocrine Society of the Republic of China also published a White Book for Thyroid, their recommendation was to use anti-thyroid medication first, and do surgery only after the physician's evaluation determined it necessary.[xix]

The Emergence of Radioactive Iodine

After WWII, the establishment of nuclear medicine as a specialty, in addition to advances in knowledge of the function of hormones, brought about different treatment options for hyperthyroidism.[xx] Beginning in the 1950s, radioactive iodine (RAI) treatment imported from the US (where it had first been used on patients in 1942)[xxi] became available and was presented by its promoters as one of the major breakthroughs of the nuclear age—as the biomedical application of physics. . Being a radioactive substance, it was tightly regulated in terms of its manufacture, handling, transport, storage, and application. It also requires special equipment, such as devices to protect against the radiation. Not surprisingly, RAI was preferred by internists but ran into successful opposition by the surgical tradition that had established its authority and popularity in Taiwan by the late1960s.

In the early 1950s, Western-trained scientist Wu Jing announced in Taiwan that the twentieth century was the nuclear age, and that medicine had also followed this trend, such that "radiation has claimed [mastery?] over the diseases that cannot be cured by medications and surgery."[xxii] This proved to be the prelude to the institutionalization of nuclear medicine in Taiwan, leading to the establishment of the Research Institute of Nuclear Medicine in 1956, with Dr. Wu as the director (Wu was

also the Head of the Taiwan Department Health). The mission of the institute was to do research on nuclear medicine, and it also hired "internationally renowned scholars from abroad." Its projects included the use of radio-isotope Ku 60 for clinical application, radioactive iodine 131 for thyroid diseases, phosphorus 32 for leukemia, and Au (gold)-198 for treating pleural effusion and ascites.[xxiii] Other medical institutions such as the Taipei Veteran's Hospital also established labs for radioactive iodine and scanning lab during the 1950s.[xxiv] National Taiwan University established an isotope research center in 1957, emphasizing the following fact: "There are one thousand hospitals in the U.S. that are equipped with radioactive iodine treatment. In the future when National Taiwan University Hospital can purchase radioactive isotopes, iodine 131 and Gu 60 will be our priority."[xxv]

In the same year, iodine 131 was introduced to Taiwan and used on patients. For this special occasion, the hospital held a ceremony.

"Yesterday National Taiwan University Hospital began the use of radioactive iodine treatment on patients, which enables Free China to usher in a new era for the peaceful use of nuclear energy. In order to show the importance of this event, this first pill of radioactive drug was dropped into the mouth of the first patient by the Minister of Education, who is also the chairman of the Nuclear Power Committee.... This ceremony is taking place in the Research Center for Radioactive Medicine.. This was the most meaningful and most prosaic of ceremonies, since there were no unnecessary procedures, no speeches—only Minister Chang dropping a pill into the mouth of a patient, the patient swallowing it with water, and the ceremony was over."

"According to the head of the National Taiwan University Hospital, because of the support of the Atomic Energy Council and the Department of Health, they were able to purchase the drug and transport it to Taiwan. From now on, based on a contract with the U.S., radioactive iodine will be available. Radioactive iodine is best for treating hyperthyroidism, and the patient yesterday was indeed suffering from hyperthyroidism. The half-life of radioactive iodine is only 8 days, which poses a challenge for storage. It is ordered on demand; it will be air transported from the US upon request.... [T]he cost for air transport is especially high. The eight pills arrived last Friday and after today they will lose radioactivity…"[xxvi]

Iodine 131 and nuclear power were heralded as scientific progress for peace. The significance of the event to nation-building and political stage-craft (including, most importantly, recognition of U.S.-Taiwan ties) is signaled by the fact that the Minister of Education and Director of the Atomic Council should be the person who "dropped" the pill into the patient's mouth. It's as if an analogy were being made between the radioactive pill and the atomic bomb. Little wonder that even after 2000, some internist still found himself busy explaining to the general public that RAI is NOT an atomic bomb.

Apparently, medical institutions and elites were eager to promote RAI, and several hospitals started research centers. By the end of the 1950s, Iodine 131 was seen as the alternative to surgery, and several papers were presented at medical meetings.

"Many men and women in Taiwan suffered from hyperthyroidism. In the past, surgical removal of the thyroid was a must…. Yang Hsueh-fang, Kao Tien-cheng, Wang Kuan-chu, Chang Chien-yao, Ho Chao-Ming, and Chen Ruei-san, of the

National Taiwan University Isotope Research Institute gave a paper today at the annual meeting, and they explained that the application of radioactive iodine as a treatment for hyperthyroidism. This would make surgery unnecessary. For thyroid patients, this is good news. They have been using radioactive iodine to treat thyroid [disease] and until August [1959] they have accumulated 113 cases, and most of the treatment outcomes are very good."[xxvii] In addition, not only were the effects of Iodine 131 praised--they were even described in magical terms: "One takes the iodine 131 as if drinking a glass of water, and will receive novel effects, iodine will release energy among the clusters of atoms, therefore slowing down the metabolism. The working of it is still unclear."[xxviii]

Despite the celebratory entrance of RAI in the 1950s, including several elite medical centers launching nuclear medicine, in practice the extent of the use of radioactive iodine clinically remained limited. In the early days of nuclear medicine, the air-transport of RAI from the US and it quick loss of efficacy presented real difficulties. It was also very expensive. Under these circumstances, RAI could hardly become a real rival for surgery in the north, not to mention places outside of Taipei where surgery had been established since the 1950s.

It was not until 1962 that Taiwan began to produce RAI locally, after the swimming-pool reactor (THOR) at National Tsing Hua University began operation.[xxix] But the development was still circumscribed. By 1983, a physician in nuclear medicine was finally able to state: "Currently, as a result of the increased use of iodine 131, surgeon's opportunities to practice are decreasing. This may increase their misconduct in treating patients." [xxx] Four years later, 1987 saw the establishment of the Society of Nuclear Medicine. By now, RAI was finally in the position of competing with surgery.

From the point of view of internal and nuclear medicine, the use of RAI enabled avoiding the risk of surgery and it was also inexpensive. But being a radioactive substance, both medical and lay people were concerned with the risk of cancer. Young children and pregnant women or women who plan to become pregnant are not users of RAI. In 1978, medical research had stated that RAI did not increase the risk cancer, and it may even lower the risk of thyroid cancer.[xxxi] Yet, as late as 2003, the internist Chang Tien-chun of National Taiwan University Hospital still lamented: "In Taiwan, whenever people hear the term radioactive iodine or atomic iodine, they retreat three day's march [*tuibi sanshe*], and I am forced to tell them that it's not an atomic bomb."[xxxii]

In 1969, National Taiwan University Hospital allegedly treated 815 cases of patients with hyperthyroidism using RAI, and they claimed that the cure was over 80%, except for a few who were resistant to RAI and were then "persuaded to accept surgery."[xxxiii]

Even though the government-in-exile upheld RAI as the medical counterpart of nuclear power and ushered it in with staged rituals, RAI did not overtake the surgical approach as it did in the US. As late as the 1990s, surgery was still the major treatment option for this common disease in Taiwan. RAI was a latecomer and, with the exception of a few prestigious hospitals in Taipei such as the National Taiwan University Hospital, most medical institutions and clinicians were not equipped to use the substance. In the popular imagination, RAI was equated with the aftermath of the atomic bombing of Japan. The ways in which surgery was preferred point to the importance of established social organizations and material conditions of medical practice as well as the post-Hiroshima image of radioactive materials.

Conclusion

Surgery had established its status as one of the major forms of medical treatment for many diseases by the mid-twentieth century in Taiwan, including thyroid diseases. And it was so common that it became excessive in some cases. In contrast, despite its glamorous arrival, the use of RAI initially was very limited by its technology and by patients' perceptions, and it did not seriously rival the thyroidectomy until the late 1980s.

Yet, in 2002, a well-respected endocrinologist working in a medical center in southern Taiwan was still troubled by some rumors that had purportedly been made up by some surgeons working in local clinics. According to the rumors (rumors about rumors, really), RAI was "bad for the health" due somehow to its atomic nature. Furthermore, it is still very common for patients with hyperthyroidism to go with the surgery.

工業發達與神經緊張的身體：戰後台灣甲狀腺亢進疾病史，1950s-1990s[3]

「身體的健康，須依賴心靈的健康‧高血壓，偏頭痛，毒素性甲狀腺腫，關節炎，心臟病，胃潰瘍及許多其他的疾病，都可能是情感壓力所造成的，藥物並不能帶來平安，我們多數的疾病，都在乎情緒…」[4]

[3] 感謝陳曉齡、廖穎凡、古家餘、陳韻婷等同學、蕭璧容醫師及洪志秀教授在撰寫這篇文章過程中的協助。

[4] 青羊，〈情緒緊張造成的疾病〉，1972-09-18，《聯合報》（婦女兒童）

甲狀腺亢進是相當常見的疾病，病人以女性為主。[5]此疾病對於健康造成的風險為多面向且具系統性，如新陳代謝、視力、骨質密度、心臟功能，甚至生育等等。甲狀腺的健康問題，隨社會變遷而異——早期因食物缺碘所形成的甲狀腺腫大（功能低下）而在特定地區形成公共衛生問題（如集集、埔里、卓蘭、梅山、吳鳳、大內、南化及六龜等），隨後因食鹽中加碘(1967)，[6]此問題嚴重性不再。然而，成因不同的甲狀腺亢進則仍是女性相當常見的疾病（男女比為 1:3.5）。免疫學發展後，甲狀腺亢進名列自體免疫疾病之一，個人生活的壓力也列入疾病成因之中。[7]

本文在此初步勾勒出幾個歷史背景以作為問題的基礎。我主要想藉由甲狀腺亢進的歷史來探討疾病與性別的關係，尤其著重於社會變遷中的女人處境及其與身體疾病之間的交互關係。在此一歷史中，1970 年代是重要的轉折點——此時醫界與大眾文化中開始浮現生活壓力與健康的互動關係的說法，而壓力成為引起疾病的原因之一（包括甲狀腺亢進），即所謂「工業發達的神經緊張」所引起的。另外一方面，1970 年代亦標示著工業化與傳統糾結的年代，如薇薇夫人所言：「大多數女性的問題和痛苦，是不能適應社會變遷中的女性角色，傳統的要求，現實的壓力，以及未來的趨向等等，使得未婚或已婚的女性，常常陷入痛苦的境地。」[8]身體的各種訊號，或許是此一痛苦的體現(embodiment)方式：頭痛、月經失調、腸胃不適等等。以甲狀腺亢進為例，我們或可探知性別關係的身體化情形，而疾病的表現可說是其中一種可能性。

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[5] 甲狀腺亢進(hyperthyroidism)，即甲狀腺分泌過多造成的各種問題，包括心跳過快、怕熱、食量大、體重減輕、眼睛突出等等，為一種內分泌疾病，病人族群中以女性為主。根據當代醫學，病因有遺傳、壓力、碘過多等等。此與碘缺乏所造成的甲狀腺腫大(goiter)不同，但是同樣為甲狀腺疾病之一。後者為台灣早期（在食用鹽加碘之前），常見的疾病。

[6] Frank W. Lowenstein, "Iodized salt in the prevention of endemic goiter: a world-wide survey of present programs," *American Journal of Public Health*, 57.10(1967): 1815-1823. 根據 1952 年台北市中小學畢業生升學學生體格檢查統計，患有甲狀腺疾病者共 6289 人，佔全人數之 28%。〈當前教育問題〉1952-10-01，《聯合報》。

[7] 壓力(stress）在源自於虎克定律(Hooke)的模型，原用於機械裝置方面。用於身體疾病的例子上時指一個人的心理狀態會影響身體的健康。Cary L. Cooper, Philip J. Dewe, Stress: A Brief History. (New York: Wiley Blackwell, 2004)

[8] 薇薇夫人，〈理想的女性雜誌〉，《聯合報》，1976 年 1 月 13 日。

台灣戰後醫療史的研究中，較少有關性別與疾病的歷史研究。目前已有的研究包括傳教醫療（如馬偕）、殖民醫療中的女醫、產婆的沒落與婦產科的興起、護理專業、及美援醫療。而研究議題方面，主要以女性醫療工作者或生育為主，如日治時期女醫、戰後護理史、徐千田與子宮根除術、人工流產、及生殖科技。[9]本文希望能為性別醫療史及性別科技的領域帶來新的案例，並為台灣性別研究加入身體的歷史研究。

為何研究甲狀腺亢進的歷史？可從三個層次來談。首先，目前為止有關性別與醫療的研究大多環繞在女性生殖系統議題，不脫婦產科歷史的範圍。此一情形雖有其必要性（生產是女性健康重要議題），但也容易造成女性等同於生殖的印象，而此為性別研究者所欲避免的。性別與醫療的議題應當更寬廣，將其他非生殖系統的議題納入，尤其是疾病研究。有關女性疾病的研究，除了憂鬱症之外，其他仍大多與生育有關。

其次，關於疾病與身體的歷史性，也是近年來性別與身體研究的重要議題。甲狀腺亢進的特殊性之一在於它並非傳染病，病因不在於微生物，而近年來醫學界更指出其與個體免疫系統及生活情境有關，因此可藉以討論生物性與社會性的交織。透過這類的研究，可以呼應近年來女性主義歷史與身體研究的重要觀察——生物或是生理現象並非恆常不變的真理。亦即，身體的生物性或是所謂的「自然現象」也受社會物質條件影響。由於飲食營養的改變所造成的初經年齡的下降即是例子之一。史學者 Joan J. Brumberg 稱此為生物社會發展(biosocial development)。[10]女性主義生物學者 Anne Fausto-Sterling 透過不同女性的工作生活歷史與骨質疏鬆之間的關係研究，也指出我們有必要重新審視性／性別(sex/gender)、生物／文化(biology/culture)或是所謂的先天／後天(nature/nurture)這一類的分野與對立。[11]

最後，正因為甲狀腺亢進與病人的生活狀況，尤其與生活壓力具有密切關係，若將此一疾病的歷史（包括盛行狀況、病因解釋及病人經驗）放在台灣性別關係的社會變遷軌跡中，我們將可觀察到社會脈動與疾病健康的關係。亦即，從農業社會轉變為

[9]吳嘉苓，2000；成令方，2002；傅大為，2004；王秀雲，2009；張淑卿，2011。

[10] Brumberg, p. 154.

[11] Anne Fausto-Sterling, “The Bare Bones of Sex: Part I—Sex and Gender” Signs: Journal of Women in Culture and Society, 30.2(2005): 1491-1527.

工商業社會的變遷過程中，壓力如何成為身體社會經驗的一部份？我們可以說某些身體的症狀甚至疾病是身體所發出來的訊息？如本文開始所引用的 1970 年代台灣報紙的說法：「身體的健康，須依賴心靈的健康・高血壓，偏頭痛，毒素性甲狀腺腫，關節炎，心臟病，胃潰瘍及許多其他的疾病，都可能是情感壓力所造成的…。」[12]此時亦是工業化逐漸成熟的變動年代。此一面向除了呼應上述身體的歷史性之外，婦女在台灣社會變遷的過程中，經歷的變化較男性更為顯著。而身體症狀的談法也較職業婦女「一根蠟燭兩頭燒」的論述早了十幾年，是否因為身體症狀（作為一種身體化語言）先於有明確觀點的語言？也或許，對於疲憊與壓力的感知，身體比意識更加敏銳。[13]

壓力年代的來臨

台灣自 1950 年代末起，報端開始出現大量的翻譯文章及少數本土文章，討論有關緊張與壓力造成的健康問題及因應方法。雖然從翻譯文章難以直接探知台灣本土的情形，但是從許多翻譯者積極引進翻譯，我們或可以將此一現象，視為緊張壓力年代的預告，或是反應人們對於時代變遷的意識。

這些文章主要來自《婦女與生活》、《天主教文摘》,《婦女世界》《日常生活科學常識》或是大眾書籍如《婦女與疲勞》 (Woman and Fatigue)等等。[14]無論是翻譯文章及部分台灣作家的文章，都清楚地意識到時代的變遷所形成的壓力，以及這種壓力對於健康造成的問題。在工業化的時代中，最重要的變化之一是自動化的機器逐漸成為主要的生產方式。而此，許多人或許會用時代進步或是技術進步來描述，但是機械化有其隱憂。機器化雖然省力，但是省力所帶來的是呆板的工作，有其潛在的問題。在一篇題為〈自動化和工業病〉的譯文，指出這樣的問題：「工業醫藥專家穆勒・林洛斯教授指出，在一家工廠改裝自動化設備後，由體力勞動過度而獲的疝氣病減少了百分之八十五，但血液循環疾病、心臟病及失眠症則大為增加，他相信，長期下去，神

[12] 青羊，〈情緒緊張造成的疾病〉，《聯合報》，1972-09-18。
[13] 〈工作家務兩頭忙 我要加薪！〉，《民生報》，1989-06-06。
[14] Dr. Marion Hilliard, Woman and Fatigue. (New York: Doubleday, 1960)

經緊張比體力枯竭更為危險，神經緊張可生於機器所生的噪音和熱，流水作業所需要的高度集中、調班工作或過於呆板的定規工作。」[15]有些文章認為，過度疲勞所形成的神經緊張也會造成脫髮。「精神上的壓力，神經過度緊張，均影響皮膚健康，包括生長頭髮的頭皮部份，日常生活應儘力避免身體過勞。」[16]

1970 年代後，壓力造成各種身體狀況逐漸成為相當普遍的說法。在一篇以〈工業社會緊張的生活刺激，甲狀腺亢進患者須早治療〉為題的報導中，引述台大醫師陳傳慶：「當你發覺自己老是不舒服、沒精神、人漸漸瘦下來，體重輕了，兩手常奇怪的發抖，或是無緣無故常發脾氣，看什麼都不順眼的時候，最好到醫院去檢查一下。」陳傳慶並且提出了臨床的觀察，「醫院裡發現，這種病人有越來越多的趨向。這是工業社會裡緊張的生活刺激了大腦中樞內分泌組織造成的現象，甲狀腺分泌受了刺激變得不正常，導致機能亢進後，就會有前面所說的徵兆。」[17]「無故常發脾氣，看什麼都不順眼」這一類的描述相當值得分析。我們從 PMS 論述的分析中，可知將女性的情緒或行為指向身體生理變化甚至化約為某一化學物質的起伏，深具性別意涵，而忽視了性別規範與女性的特定社會處境。甲狀腺亢進，可能有類似的情形。但是，有關 PMS 的討論中較少強調的是，社會處境亦可能導致疾病或身體狀況的形成。不過，此一非生物性的疾病觀，或是所謂的社會疾病觀，在壓力與健康的研究中倒是有相當的著墨。

壓力來源之一是社會競爭。「這種壓力促使很多人勤奮超過了他們的限度，競爭帶給人不少的滿足和刺激，但也帶來了最大的憂慮和緊張。」[18]又如所謂的「現代商業生活的壓力，形成他特有的身體上的病害。」[19]

而對於處在變遷社會中的婦女而言，壓力的來源是多重的，不僅限於工業化所造成的神經緊張。不令人意外的，婚姻狀態是其中一個影響健康的重要因素。1950 年代

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[15] 〈自動化和工業病〉(世界論壇社佛蘭克府訊)，1972-05-30，《聯合報》聯合副刊。

[16] 任世聰譯〈家庭護理如何防止脫髮〉1965-11-04，《聯合報》聯合副刊。

[17] 〈工業社會緊張的生活刺激，甲狀腺亢進患者須早治療〉1970-03-04《經濟日報》

[18] 〈你為什麼會緊張?〉1966-12-30，《聯合報》聯合副刊。

[19] 〈增美減肥・預防心臟病〉1968-05-08，《經濟日報》。

末，一篇以〈獨身女性為什麼早衰〉為題的翻譯文章，即認為單身婦女面臨「強大的壓力，致使情緒發生紊亂，並進而導致內分泌系統的不平衡。」[20]然而，日益增多的已婚職業婦女卻也「永遠擺不脫雙重的壓力」(即家庭與工作)。[21]

不過，婦女不管是單身或已婚，職業婦女或是家庭主婦，似乎都有壓力與身體健康問題。例如，「患頭痛的婦女比男人多，家庭主婦比職業婦女多。…十分之九頭痛的原因，都是憂鬱、緊張、睡眠不足及心理上受到壓力而引起的。…。當這些壓力加重時，頭及頸部的神經便受到影響，肌肉也變得緊張。」[22]

值得注意的是，有關生活壓力的研究大約於 1980 年才開始，有關生活壓力與疾病的醫界文章於 1982 年出現，有關職業婦女生活壓力的研究也於此時出現。[23]

緊張年代中的女性：蠟燭兩頭燒的興起

關於婦女的社會處境的討論，「現代婦女」「傳統與現代」是其中的主要用語，如上述薇薇夫人所謂的「變遷中社會裏的女性角色」。也就是說，除了工業社會多數人面臨的生活緊張之外，職業婦女似乎還多了所謂的家務與職業的雙重壓力（如上述的育兒問題)。女詩人蓉子有所謂，活在現代，女人已經無法如古代女詩人一般悠閒—「依遍欄杆只是無情緒」。

> 「作一個生活在現代的婦女，生活是多元而匆忙的，生活與現實上的一切往往用千手來牽扯妳，要求妳的注意，這種情況和我們古代女詩人或女詞人那種『依遍欄杆只是無情緒』」的優閒相較，確有天壤之別。…生活在繁忙中的我們，連點滴都得珍惜，絲毫不能浪費，在家務與職業雙重的壓力之餘，有多少閒暇能從事

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[20] 也先譯〈獨身女性為什麼早衰〉1959-12-31《聯合報》萬象。原文出自「婦女與生活」。又如「如果精神壓力過重，情緒過份緊張，還會出現氣短，疲乏等感覺。」，雪〈情緒影響體力〉1969-10-14，《經濟日報》。

[21] 白芷，〈家庭的喜劇，寶寶上學了〉《聯合報》。1965-02-27。

[22] 耀華，〈注意頭痛〉，《聯合報》 聯合副刊(取材自一月份真實故事) 1968-03-20

[23] 葉明華、柯永河、黃光國，〈生活壓力諸因素對心理健康的影響〉《中央研究院民族學研究所集刊》，52(1982):173-210；蘇東平，〈生活壓力與疾病〉，《臨床醫界》，9.4(1982): 303-310；伊慶春，〈已婚職業婦女的雙重角色：期望、衝突與調適〉，《中央研究院三民主義研究所叢刊》，1982.

創作？」[24]

又如，「呂秀蓮認為，目前的職業婦女，無論在社會，辦公室或家庭，仍然遭遇許多有形或無形的壓力，譬如升遷機會，待遇高低，職務區別等，仍然存有許多不平等現象。」[25]

工業化所帶來的緊張，也源自於傳統社會與工業化社會的矛盾。有關女人的處境的討論中，除了上面提到的繁忙以及家庭與工作的兩頭燒之外，「傳統的壓力」也是其中的關鍵。

以當時引起廣泛注意的省議員趙綉娃(1949--)離婚為例，可以充分顯示女性在轉折時期中所面臨的問題。趙乃是當時最年輕的女性省議員，當選時僅 23 歲，於 1977 年離婚。趙隨後出版了她的自述，「忽傳婚變，對社會上許多有抱負的女性是一種打擊」，[26]說明她身為一個身負社會重任的議員，仍然背負著傳統家庭對她的期待，在公事與家務育兒之間的困難，面臨了許多來自婆婆小姑與丈夫的責難，加上僅生兩女而無子，最後終至離婚收場。在趙的自述中，我們可見雖然社會提供給女性許多新的可能性，但是傳統的性別規範與對女人的期待並沒有隨社會改變而有所調整，或是因為趙的夫家是世家，所以更有需要維持性別規範以維護其家族的適切地位。

針對趙綉娃的例子，呂秀蓮(1944--)在報端發表意見，呼籲女人不應侷限於生兒育女的傳統角色。「客觀上，機器文明使社會生產方式不以勞力為必要，因而生產行列不再是男人的專利，此其一；家務處理的現代化使得人人均能處理家務事而不再需要全天候的家庭主婦，此其二；醫藥養生知識的普及，使婦女壽命

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[24]〈莫讓知識的差距拉長 日新又新 抓緊機會 排除家庭瑣務的障礙〉，1970-06-05，《經濟日報》。引文為女詩人蓉子的發言，部分出自蓉子《蓉子詩抄》，台北：藍星詩社，1965。

[25]〈社會偏見仍未盡除 職業婦女難題不少 男主外女主內．觀念有待調整 女性自愛自強．地位才能提高〉1974-04-21，《聯合報》。

[26] 趙綉娃，《我的奮鬥——趙綉娃自述》，高雄：勝夫書局，1977。此言出自序言，〈我為什麼寫這一本書〉。

延長，家庭計劃的推展使婦女無需長時間懷孕生產哺育子女，『生兒育女』不再是女人唯一的功能，此其三。…」[27]我們從呂的文字可以看見，一種意識到時代變遷的性別觀點。機器文明除了上述的健康問題的改變之外，也提高女人的勞動參與，而另外一方面，家務科技的現代化，使得男人也可以處理家務事，而醫療科技更減少女人的生育責任。或許可以這麼說，現代化過程亦是一種性別關係重組的過程，至少從 1970 年代的台灣人看來是如此。而此重組過程，引起了許多的

壓力與女人的健康問題

在性別關係改變中的年代，女人所承受的壓力似乎是較諸於男性還多了一層。也就是說，現代化（時間壓力）及現代化與傳統的協商（兩頭燒問題）。隨之而浮現的是許多的身體現象。

例如，禿頭問題。有文章針對「女人也會禿頭嗎？」的回答，所列舉出的原因，包括遺傳、年齡、整理頭髮的習慣、藥物及操勞過度，且「婦女在社會中所居的新地位，以及婦女在家庭中所擔任的工作日漸繁重，致使婦女操勞過度，益增脫髮。」[28]又如皮膚問題：「輔仁大學化學系副教授富鐵因說，臉部皮膚老化的程度，與臉部細胞壞死的速度成正比。造成臉部細胞壞死的因素，除了疾病、緊張、壓力外，飲食不良、維他命缺乏等，也是重要原因。」[29]而甲狀腺亢進的人，也列為體質孱弱而容易疲勞者之一。[30]

無論是脫髮禿頭或是皮膚問題，或許會顯得表面。但是，緊張壓力所造成的內分泌問題（包括甲狀腺亢進）也有不少的討論。這與 1960 年代以來賀爾蒙科

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[27] 呂秀蓮，〈成功者的背後從趙娃議員的離婚談起〉，1976-12-07，《聯合報》聯合副刊。

[28] 薇，〈婦女脫髮的預防〉，1974-02-23《聯合報》聯合副刊。

[29] 〈青春不需外求 健康遠勝化粧〉，1982-03-22，《民生報》。

[30] 吳水生譯〈孱弱體質消除疲勞方法〉(「消防疲勞的秘訣」) 1976-08-16，《聯合報》

學的發展有密切關係。[31]我們從上述 1950 年代初期有關單身女性壓力與內分泌的翻譯文章可以看出，有關內分泌的科學發展如何與社會的脈動發生關係。1960 年代，持續引入賀爾蒙的大眾醫普知識：「要了解荷爾蒙是如何利用的，必須了解到它們是參與著身體的整個生命過程。它們的作用是調節血壓，新陳代謝，鹽及水份的均衡，性的發育，和對壓力的抵抗等。」[32]此一「賀爾蒙參與生命過程」的觀點似乎是自 1950 年代以來醫界所要強調的，批評一般人以為賀爾蒙可以「返老還童」「補陰壯陽」「青春長壽」而服用各種成藥（舌片、青春素），可見賀爾蒙在社會中已有一定的瞭解，即使此一瞭解未必符合科學知識。重要的是，賀爾蒙參與整個生命過程，也預告了賀爾蒙逐漸跨出與生殖的範圍，而涵蓋情緒的範圍。[33]

1970年代，因為甲狀腺亢進而進行甲狀腺切除赫然已經與子宮切除、胃切除、盲腸切除等並列為浮濫手術行列之一。此一現象，是兩個條件的組合：一是有甲狀腺狀況者相當普遍（雖然缺乏盛行率的調查），二是甲狀腺容易成為以手術取向的外科醫師下刀的對象。

到了 1990 年代，我們仍可見到甲狀腺亢進與職業婦女的壓力相關的提醒：「甲狀腺機能亢進好發於 20 至 40 歲婦女，女性病患是男性的 8 倍。罹患原因和家族性遺傳，及壓力有關。醫師呼籲職業婦女要適度紓解壓力，以免造成身體也受累。」[34]

結語

在醫療史上，感情或情緒向來都是疾病解釋的一個面向。如中醫傳統所謂的「夫癭瘤者，多由喜怒不節，憂思過度，而成斯疾焉」。十八世紀以來，西醫及

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[31] 例如，首先鼓吹女性於更年期時使用賀爾蒙的醫師，Robert Wilson, Feminine Forever 一書在此時引起相當注意。

[32] 〈醫藥新知 荷爾蒙的新用途〉1966-08-25，《聯合報》聯合副刊

[33] 趙宋岑〈賀爾蒙的奇蹟〉，中央日報編印《我們的身體》（台北：中央日報社，1952）頁 126-137。

[34] 〈妳是否常無端發脾氣？職業婦女 罹患甲狀腺亢進機率大〉 1990-04-15，《民生報》

心理學挪用物理科學的壓力說來解釋心理與身體的健康問題。在此值得釐清一個重要的問題，甲狀腺亢進是否為壓力所引起的？我將尋找這個問題的答案的任務留給醫療專業者與科學家，而作為一個性別與醫療史的研究者，我所想要瞭解的是，社會緊張或是壓力在社會變遷脈絡下形成疾病解釋的方式的政治性，或是此一解釋的暗示。

回顧歷史，在傳統社會中的女人，未必沒有心力交瘁者，從傳統社會中許多女性自殺可以窺見一些端倪。[35]我們也可從十九世紀末二十世紀初的傳教士文獻中發現一些零星的病例。1960-1970 這段台灣歷史的特殊性何在？「生活壓力」與身體的交互作用應是一個重要的面向，在此之前，並沒有如此的涵蓋性蓋年來作為疾病的解釋。過去解釋人們的心力交瘁，或是以婆媳問題或是以傳統殺人等等來解釋，而壓力則是一個新興起的關鍵概念，在其出現的初始常用於工業化中女性的雙重負擔，深具性別政治的色彩。

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"Atomic Bombs" or the Knife: Competing Treatments for Hyperthyroidism since WWII in Taiwan

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"Some doctors 'misdiagnosed' or 'intentionally misdiagnosed' patients, and treated cases of anxiety disorder as thyrotoxicosis. They even cut off patients' thyroids…. Whoever has the above symptoms should go to a reliable physician or hospital for detailed and correct examination."[1] (Zheng Tai-an, M.D., 1978)

"In some hospitals in central and southern Taiwan, whenever they see a patient with a thyroid tumor, [regardless of its nature] they all resort to surgery." (Liao Kuang-yi, M.D., 1980)

Thyroidectomy—the surgical removal of the thyroid—has been a treatment for both goiter and hyperthyroidism since the early twentieth century. In the case of hyperthyroidism in the West after WWII, however, radioactive iodine (RAI) became the standard treatment, while surgery came to be used only in special circumstances such as ophthalmopathy (i.e., eye problems).[2] In East Asia, Koreans likewise came to resort to RAI in most cases [after WWII].[3]. In contrast, even though RAI was introduced to Taiwan in the 1950s, surgery remained the dominant approach until at least the late 1990s As the opening quotations suggest, thyroidectomy was excessive in post-WWII Taiwan across various contexts of misdiagnosis and over-reaction, including benign tumor cases.

Today, the treatments for hyperthyroidism include surgical removal of the thyroid gland, anti-thyroid medication, and radioactive iodine (RAI, nicknamed the

atomic cocktail). Currently, there are approximately 10,000 thyroidectomies being performed annually in Taiwan.[4] During the period between 2000 and 2004, according to National Health Insurance figures, among 1157 new cases of hyperthyroidism, 949 (82%) took anti-thyroid medication, 202 (17.5%) received surgery, and only 6 cases (0.5%) used RAI treatment.[5] Since the remission rate is high for anti-thyroid medication treatment, surgery and RAI are seen as the more permanent solutions.

This paper traces the history of the competing treatments for hyperthyroidism[6] in Taiwan since WWII, especially surgery and RAI. By doing so, I suggest that what was seen as the best treatment is historically contingent, depending on the social and material conditions of the treatment chosen, such as practitioners' skills, technological capacity, and patients' preconceptions. The fact that surgical clinics became relatively widely established after WWII and the limited access and handling of radioactive iodine are the two most critical aspects of the history. RAI and thyroidectomy co-existed as the treatment options, yet the two flourished in very different cultural contexts. The rivalry between the two reveals the tensions that existed between a number of medical specialties: internal medicine, psychiatry, surgery, and nuclear medicine.

Surgery

The dominance of surgery in medicine from the early twentieth century and the prevalence of thyroid goiter in Taiwan are two crucial aspects of the history of thyroidectomy. Since the introduction of missionary medicine in the nineteenth century, surgery was a distinguishing characteristic of western medicine. Among the main characters of surgical medicine in Taiwan were George L. Mackay (1844-1901) and David Landsborough (1870-1957). The surgical clinic was a common

establishment throughout Taiwan by the mid-twentieth century.[7] In the popular media, medical journals, and recollections of surgeons, surgical achievements were often celebrated as "medical breakthroughs," which included operating on esophagus tumors, techniques for cutting parts of the liver, cutting the thyroid and stomach, and other surgical interventions. Surgeons also established their fame and authority based on certain surgical procedures.

One of the reasons surgeons were able to develop their surgical skills was the fact that endemic goiter was a serious issue, and surgeons had abundant opportunity to do thyroidectomy. According to a survey published in 1940, its prevalence was 6.68% in Taipei, Taiwan, compared to 0.88% in Sapporo, Japan. The same survey also compared different ethnic groups in colonial Japan—Japanese 18%, Taiwanese 44.7%, and aborigines 61.1%. Goiter was also more prevalent in certain areas than others, and in the prevalent areas, even the pigs had a higher rate of goiter. The government of Taiwan initiated an iodine-salt project in 1958 and full coverage was completed in 1967, after which the goiter problem greatly improved. Yet, it did not completely vanish, and public health experts pointed to the problem of the source of drinking water. Island-wide running water did not become available until late 1980s.[8]

During the early decades of the twentieth century, surgical removal of the thyroid gland was offered by medical missionaries and western-trained Japanese surgeons.[9] (Taiwan was under Japan in the period between 1895 and 1945). For example, Sawada Heijirou （澤田平十郎）, one of the leaders of Taipei Imperial University (now National Taiwan University) during the colonial period, was known for his thyroidectomy technique. Li Tien-yu (1913-1995), one of the prominent surgeons at National Taiwan University Hospital, remembered the thrill of doing thyroidectomy as an intern during the 1930s.[10] Harry Miller (1879-1977), the American medical missionary who travelled around Asia, was also known for his

surgical itinerary.

Yet, surgery was not always a good solution, at least before the 1970s. Reports of post-surgical death were not uncommon in the newspapers. For example, in 1953, surgeon Fu Chu Xiu performed a thyroidectomy on his cousin, Fu Ying Mei. A few hours later, the patient died from heart failure due to a drastic change in blood pressure.[11] Cases of death probably served as a form of regulation on the extent to which a surgeon might be inclined to do surgery. Thyroidectomy, as a type of surgery, was seen as a procedure of moderate difficulty.[12] Compared to other surgeries, it was not the most frequently performed type. For example, during the year 1958, the annual statistics of Xu Clinic in Kaohsiung City, there were 127 cases of thyroidectomy, 12% of all total surgeries (1044).[13]

However, some surgeon still made their fame by doing thyroidectomy. Take the aforementioned Harry Miller of the Seventh Day Adventist Hospital (later Taiwan Adventist Hospital) as an example. A news report marveled at his achievement: "During the 1920s, he was traveling around in Asia, and he performed 6 to 8 thyroidectomies daily. He had done about 3000 surgeries, and other surgeons remarked on how incredible this was.[14] Miller began his missionary career in Asia in 1903, and he established the Seventh Day Adventist Hospital in 1954 in Taipei.[15] According to Miller's biography, Miller had successfully reduced the mortality rate after surgery from 50% to 1%, and throughout his life he performed a total of 6000 thyroidectomies.[16] Miller's case reveals the true importance of thyroidectomy. In addition, Miller traveled around Asia to demonstrate his surgical technique.
Due in part to the reduced mortality rate and the flourishing of surgical clinics during the 1960s, by the 1970s thyroidectomy became one among a number of excessively performed surgeries in Taiwan (the others were hysterectomy, stomach removal, and appendectomy).

Many contemporary accounts in the media indicate that cutting off certain body parts became very common in the 1970s, including hysterectomy, stomach removal, and appendectomy. In 1977, a legislative Yuan member Wei Pei-lan raised the question of surgical abuse: "Certain medical practitioners, in order to make money from labor insurance, have performed unnecessary thyroidectomy on women laborers."[17] Three years later, a National Taiwan University hospital surgeon, Liao Kaung-yi, was quoted as saying, "Spare the knife, thyroid tumors may be malignant or benign, not all require surgery." He also accused some hospitals in mid- and southern Taiwan as follows: "Whenever they see patients with thyroid tumor, they all use the knife."[18] By 1994, there were rumors of "thyroid-less villages" along with rumors of "uterusless villages." There are certainly differences between hysterectomy and thyroidectomy, yet both uterus and thyroid were allegedly among the most frequently cut off main body parts. In the meantime, probably as an attempt to regulate the practice, the Taiwan Surgical Association and the Endocrine Society of the Republic of China also published a White Book for Thyroid, their recommendation was to use anti-thyroid medication first, and do surgery only after the physician's evaluation determined it necessary.[19]

The Emergence of Radioactive Iodine

After WWII, the establishment of nuclear medicine as a specialty, in addition to advances in knowledge of the function of hormones, brought about different treatment options for hyperthyroidism.[20] Beginning in the 1950s, radioactive iodine (RAI) treatment imported from the US (where it had first been used on patients in 1942)[21] became available and was presented by its promoters as one of the major breakthroughs of the nuclear age—as the biomedical application of physics. . Being a radioactive substance, it was tightly regulated in terms of its manufacture, handling,

transport, storage, and application. It also requires special equipment, such as devices to protect against the radiation. Not surprisingly, RAI was preferred by internists but ran into successful opposition by the surgical tradition that had established its authority and popularity in Taiwan by the late1960s.

In the early 1950s, Western-trained scientist Wu Jing announced in Taiwan that the twentieth century was the nuclear age, and that medicine had also followed this trend, such that "radiation has claimed [mastery?] over the diseases that cannot be cured by medications and surgery."[22] This proved to be the prelude to the institutionalization of nuclear medicine in Taiwan, leading to the establishment of the Research Institute of Nuclear Medicine in 1956, with Dr. Wu as the director (Wu was also the Head of the Taiwan Department Health). The mission of the institute was to do research on nuclear medicine, and it also hired "internationally renowned scholars from abroad." Its projects included the use of radio-isotope Ku 60 for clinical application, radioactive iodine 131 for thyroid diseases, phosphorus 32 for leukemia, and Au (gold)-198 for treating pleural effusion and ascites.[23] Other medical institutions such as the Taipei Veteran's Hospital also established labs for radioactive iodine and scanning lab during the 1950s.[24] National Taiwan University established an isotope research center in 1957, emphasizing the following fact: "There are one thousand hospitals in the U.S. that are equipped with radioactive iodine treatment. In the future when National Taiwan University Hospital can purchase radioactive isotopes, iodine 131 and Gu 60 will be our priority."[25]

In the same year, iodine 131 was introduced to Taiwan and used on patients. For this special occasion, the hospital held a ceremony.

"Yesterday National Taiwan University Hospital began the use of radioactive iodine treatment on patients, which enables Free China to usher in a new era for the peaceful

use of nuclear energy. In order to show the importance of this event, this first pill of radioactive drug was dropped into the mouth of the first patient by the Minister of Education, who is also the chairman of the Nuclear Power Committee.... This ceremony is taking place in the Research Center for Radioactive Medicine.. This was the most meaningful and most prosaic of ceremonies, since there were no unnecessary procedures, no speeches—only Minister Chang dropping a pill into the mouth of a patient, the patient swallowing it with water, and the ceremony was over."

"According to the head of the National Taiwan University Hospital, because of the support of the Atomic Energy Council and the Department of Health, they were able to purchase the drug and transport it to Taiwan. From now on, based on a contract with the U.S., radioactive iodine will be available. Radioactive iodine is best for treating hyperthyroidism, and the patient yesterday was indeed suffering from hyperthyroidism. The half-life of radioactive iodine is only 8 days, which poses a challenge for storage. It is ordered on demand; it will be air transported from the US upon request.... [T]he cost for air transport is especially high. The eight pills arrived last Friday and after today they will lose radioactivity…"[26]

Iodine 131 and nuclear power were heralded as scientific progress for peace. The significance of the event to nation-building and political stage-craft (including, most importantly, recognition of U.S.-Taiwan ties) is signaled by the fact that the Minister of Education and Director of the Atomic Council should be the person who "dropped" the pill into the patient's mouth. It's as if an analogy were being made between the radioactive pill and the atomic bomb. Little wonder that even after 2000, some internist still found himself busy explaining to the general public that RAI is NOT an atomic bomb.

Apparently, medical institutions and elites were eager to promote RAI, and several hospitals started research centers. By the end of the 1950s, Iodine 131 was seen as the alternative to surgery, and several papers were presented at medical meetings.

"Many men and women in Taiwan suffered from hyperthyroidism. In the past, surgical removal of the thyroid was a must…. Yang Hsueh-fang, Kao Tien-cheng, Wang Kuan-chu, Chang Chien-yao, Ho Chao-Ming, and Chen Ruei-san, of the National Taiwan University Isotope Research Institute gave a paper today at the annual meeting, and they explained that the application of radioactive iodine as a treatment for hyperthyroidism. This would make surgery unnecessary. For thyroid patients, this is good news. They have been using radioactive iodine to treat thyroid [disease] and until August [1959] they have accumulated 113 cases, and most of the treatment outcomes are very good."[27] In addition, not only were the effects of Iodine 131 praised--they were even described in magical terms: "One takes the iodine 131 as if drinking a glass of water, and will receive novel effects, iodine will release energy among the clusters of atoms, therefore slowing down the metabolism. The working of it is still unclear."[28]

Despite the celebratory entrance of RAI in the 1950s, including several elite medical centers launching nuclear medicine, in practice the extent of the use of radioactive iodine clinically remained limited. In the early days of nuclear medicine, the air-transport of RAI from the US and it quick loss of efficacy presented real difficulties. It was also very expensive. Under these circumstances, RAI could hardly become a real rival for surgery in the north, not to mention places outside of Taipei where surgery had been established since the 1950s.

It was not until 1962 that Taiwan began to produce RAI locally, after the swimming-pool reactor (THOR) at National Tsing Hua University began operation.[29] But the development was still circumscribed. By 1983, a physician in nuclear medicine was finally able to state: "Currently, as a result of the increased use of iodine 131, surgeon's opportunities to practice are decreasing. This may increase their misconduct in treating patients." [30] Four years later, 1987 saw the establishment of the Society of Nuclear Medicine. By now, RAI was finally in the position of competing with surgery.

From the point of view of internal and nuclear medicine, the use of RAI enabled avoiding the risk of surgery and it was also inexpensive. But being a radioactive substance, both medical and lay people were concerned with the risk of cancer. Young children and pregnant women or women who plan to become pregnant are not users of RAI. In 1978, medical research had stated that RAI did not increase the risk cancer, and it may even lower the risk of thyroid cancer.[31] Yet, as late as 2003, the internist Chang Tien-chun of National Taiwan University Hospital still lamented: "In Taiwan, whenever people hear the term radioactive iodine or atomic iodine, they retreat three day's march [*tuibi sanshe*], and I am forced to tell them that it's not an atomic bomb."[32]

In 1969, National Taiwan University Hospital allegedly treated 815 cases of patients with hyperthyroidism using RAI, and they claimed that the cure was over 80%, except for a few who were resistant to RAI and were then "persuaded to accept surgery."[33]

Even though the government-in-exile upheld RAI as the medical counterpart of nuclear power and ushered it in with staged rituals, RAI did not overtake the surgical approach as it did in the US. As late as the 1990s, surgery was still the major

treatment option for this common disease in Taiwan. RAI was a latecomer and, with the exception of a few prestigious hospitals in Taipei such as the National Taiwan University Hospital, most medical institutions and clinicians were not equipped to use the substance. In the popular imagination, RAI was equated with the aftermath of the atomic bombing of Japan. The ways in which surgery was preferred point to the importance of established social organizations and material conditions of medical practice as well as the post-Hiroshima image of radioactive materials.

Conclusion

Surgery had established its status as one of the major forms of medical treatment for many diseases by the mid-twentieth century in Taiwan, including thyroid diseases. And it was so common that it became excessive in some cases. In contrast, despite its glamorous arrival, the use of RAI initially was very limited by its technology and by patients' perceptions, and it did not seriously rival the thyroidectomy until the late 1980s.

Yet, in 2002, a well-respected endocrinologist working in a medical center in southern Taiwan was still troubled by some rumors that had purportedly been made up by some surgeons working in local clinics. According to the rumors (rumors about rumors, really), RAI was "bad for the health" due somehow to its atomic nature. Furthermore, it is still very common for patients with hyperthyroidism to go with the surgery.

This is my preliminary exploration of the history of the treatments of hyperthyroidism. More research remains to be done.

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科技部補助計畫衍生研發成果推廣資料表

日期:2016/04/04

科技部補助計畫	計畫名稱: 戰後以來甲狀腺亢進疾病的歷史：疾病、治療與病人經驗
	計畫主持人: 王秀雲
	計畫編號: 102-2629-H-006-001-MY2　　學門領域: 性別研究

無研發成果推廣資料

102年度專題研究計畫研究成果彙整表

計畫主持人：王秀雲	計畫編號：102-2629-H-006-001-MY2
計畫名稱：戰後以來甲狀腺亢進疾病的歷史：疾病、治療與病人經驗	

成果項目			量化			單位	備註（質化說明：如數個計畫共同成果、成果列為該期刊之封面故事...等）
			實際已達成數（被接受或已發表）	預期總達成數（含實際已達成數）	本計畫實際貢獻百分比		
國內	論文著作	期刊論文	0	0	100%	篇	
		研究報告/技術報告	0	0	100%		
		研討會論文	1	0	100%		
		專書	0	0	100%	章/本	
	專利	申請中件數	0	0	100%	件	
		已獲得件數	0	0	100%		
	技術移轉	件數	0	0	100%	件	
		權利金	0	0	100%	千元	
	參與計畫人力（本國籍）	碩士生	0	0	100%	人次	
		博士生	0	0	100%		
		博士後研究員	0	0	100%		
		專任助理	0	0	100%		
國外	論文著作	期刊論文	0	0	100%	篇	
		研究報告/技術報告	0	0	100%		
		研討會論文	2	0	100%		
		專書	0	0	100%	章/本	
	專利	申請中件數	0	0	100%	件	
		已獲得件數	0	0	100%		
	技術移轉	件數	0	0	100%	件	
		權利金	0	0	100%	千元	
	參與計畫人力（外國籍）	碩士生	0	0	100%	人次	
		博士生	0	0	100%		
		博士後研究員	0	0	100%		
		專任助理	0	0	100%		

其他成果（無法以量化表達之成果如辦理學術活動、獲得獎項、重要國際合作、研究成果國際影響力及其他協助產業技術發展之具體效益事項等，請以文字敘述填列。）	本研究曾分別於三個國際研討會上發表，分別為香港中文大學的梁保全香港歷史及人文研究中心所主辦的慈善與醫療研討會、美國醫學史學會年會(2014)及APSTSN亞太STS網絡會議(2015)，均獲得寶貴的意見，同時也因此而拓展學術網絡，有利於未來學術交流。

	成果項目	量化	名稱或內容性質簡述
科教處計畫加填項目	測驗工具(含質性與量性)	0	
	課程/模組	0	
	電腦及網路系統或工具	0	
	教材	0	
	舉辦之活動/競賽	0	
	研討會/工作坊	0	
	電子報、網站	0	
	計畫成果推廣之參與（閱聽）人數	0	

科技部補助專題研究計畫成果報告自評表

請就研究內容與原計畫相符程度、達成預期目標情況、研究成果之學術或應用價值（簡要敘述成果所代表之意義、價值、影響或進一步發展之可能性）、是否適合在學術期刊發表或申請專利、主要發現或其他有關價值等，作一綜合評估。

1. 請就研究內容與原計畫相符程度、達成預期目標情況作一綜合評估
   ■達成目標
   □未達成目標（請說明，以100字為限）
   　□實驗失敗
   　□因故實驗中斷
   　□其他原因
   說明：

2. 研究成果在學術期刊發表或申請專利等情形：
   論文：■已發表 □未發表之文稿 □撰寫中 □無
   專利：□已獲得 □申請中 ■無
   技轉：□已技轉 □洽談中 ■無
   其他：（以100字為限）
   本研究已完成研討會論文，分別於亞太科技與社會網絡會議(APSTSN Network)及美國醫學史學會年會研討會上發表，獲得不少寶貴意見。
   Hsiu-yun Wang, “‘Atomic Bombs’ or the Knife: Competing Treatments for Hyperthyroidism since WWII in Taiwan,” 2015 Asia-Pacific Science, Technology and Society Network Biennial Conference, October 1-4, 2015, Kaohsiung, American Association for the History of Medicine, 2014 Annual Meeting, Chicago, May 8-11th.

3. 請依學術成就、技術創新、社會影響等方面，評估研究成果之學術或應用價值（簡要敘述成果所代表之意義、價值、影響或進一步發展之可能性）（以500字為限）
   就學術研究而言，本研究有助吾人對台灣與冷戰時期科學與醫學發展的特殊性，可與美國歷史學者Angela Creager所著Life Atomic: A HISTORY OF RADIOISOTOPES IN SCIENCE AND MEDICINE (Chicago, 2013)相互參照。一方面由於手術在台灣本土的主導性，另外一方面則是放射線碘131的國際與技術特性，甲狀腺亢進在台灣的治療方式一直以手術為主，與美國的以碘131為主形成鮮明的對比，由此可見疾病治療的在地特性。此外，放射線元素在台灣的歷史與凸顯出冷戰科學結構特性，一方面高舉原子科學的進步性,但另外一方面，其發展仍深受美蘇對峙下美國對於其他國家的原子科學發展的防備的侷限。